Mini System FW710C/21S/30/30S

Service
Service
Service

Service Manual

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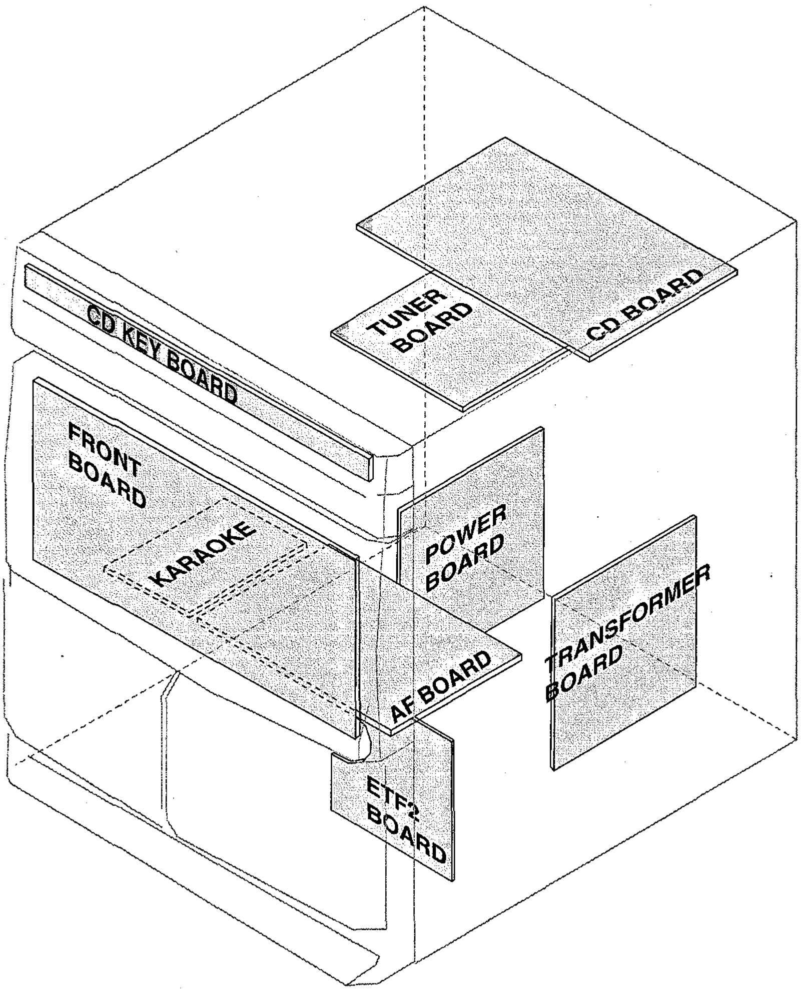
PCS 96 738

PHILIPS

LOCATION OF PRINTED CIRCUIT BOARD


CD KEY BOARD
TUNER BOARD
CD BOARD
FRONT BOARD
KARAOKE
POWER BOARD
TRANSFORMER BOARD
AF BOARD
ETF2 BOARD

VERSION VARIATIONS:

Features & Board in used: / Versions:	/21S	/22	/25	/26	/30 /30S	/33	/34	/37
Dolby B								
RDS								
Karaoke Feature								
Digital Output								
Tuner board - ECO5 Sys	x				x			
Tuner board - Tuner 95								
Tape pc board - ND/DD/FR	x				x			
Tape pc board - DB/DD/FR								

Note: /..S = Silver colour version

SPECIFICATIONS

GENERAL:

Mains voltage : 100V for /26
110-127V/220-240V Switchable for /21
120V for /37
220V for /33
220-230V for /22/34
230V for /25
230-240V for /30
Mains frequency : 50/60Hz
Power consumption : < 15W at standby, clock on
: < 4W power off
: < 50W at 1/8 rated power out
Mains Breakdown Buffer : No
Clock accuracy : < 4 seconds per day
Dimension centre unit : 265 x 310 x 363mm

TUNER:

FM
Tuning range : 87.5-108MHz
65.81-74MHz for /34
Grid : 50kHz (& 30kHz for /34)
IF frequency : 10.7MHz ± 25kHz
Aerial input : 75ohm coaxial
300ohm click fit for /37
Sensitivity at 26dB S/N : < 7µV
Selectivity at 600kHz bandwidth : > 50dB
Image rejection : > 25dB [> 75dB]
Distortion at RF=1mV, dev. 75kHz : < 3% [< 2%]
-3dB Limiting point : < 7µV
Crosstalk at RF=1mV, dev. 40kHz : > 18dB [> 26dB]

MW
Tuning range : 531-1602kHz
530-1710kHz for /21/37
Grid : 9kHz
10kHz for /21/37
IF frequency : 450kHz ± 1kHz
Aerial input : Frame aerial
Sensitivity at 26dB S/N : < 4.0mV/M
Selectivity at 18kHz bandwidth : > 18dB
IF rejection : > 45dB
Image rejection : > 28dB
Distortion at RF=50mV, m=80% : < 5% [< 7%]

LW
Tuning range : 153-279kHz
Grid : 3kHz
IF frequency : 450kHz ± 1kHz
Aerial input : Frame aerial
Sensitivity at 26dB S/N : [< 7.0mV/M]
Selectivity at 18kHz bandwidth : [> 24dB]
IF rejection : [> 26dB]
Image rejection : [> 35dB]
Distortion at RF=50mV, m=80% : [< 7%]

AMPLIFIER:

Output power (10% THD, ± 1dB) : 2 x 25W at 3 ohm
Frequency response within -3dB : 40Hz-15kHz
Dynamic Bass Boost: DBB1, DBB2, DBB3, DBB Off 1)
Digital Sound Control: Classic, Rock, POP, Optimal, Jazz 1)
Incredible Surround: IS3, IS2, IS1, IS Off 1)
Headphone output at 32 ohm : 16.5mW
Input sensitivity Aux/Line-in : 350mV ± 2dB at 47kohm

CASSETTE RECORDER:

Number of track : 2 x 2 stereo
Tape speed : 4.76 cm/sec ± 2%
1.8 x 4.76 cm/sec
Wow and flutter : < 0.6% DIN
Fast-wind time C60 : 130 sec
Bias system : 75kHz ± 5kHz
Rec/Pb frequency response within 8dB : 80Hz - 12.5kHz
Signal to noise ratio : > 44dB

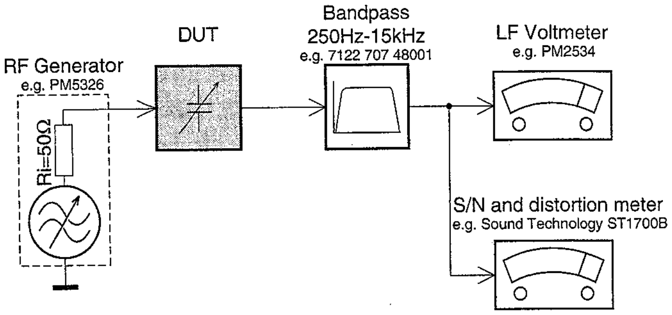
COMPACT DISC:

Measurement done at output conn. of the CDC module.
Frequency response within ± 3dB : 20Hz - 20kHz
Output level (in Vrms) : 550mV ± 2dB unloaded
Signal/Noise ratio (A-weighted) : > 80dBA
Distortion at 1kHz : < 0.5%
Channel difference at 1kHz : < 1dB
Channel crosstalk at 1kHz : > 45dB
De-emphasis : 0 or 15/50 mS (Switched by subcode on the disc)

[....] Values indicated are for "Tuner 95 Board" only
1) Frequency response in each setting is software controlled.

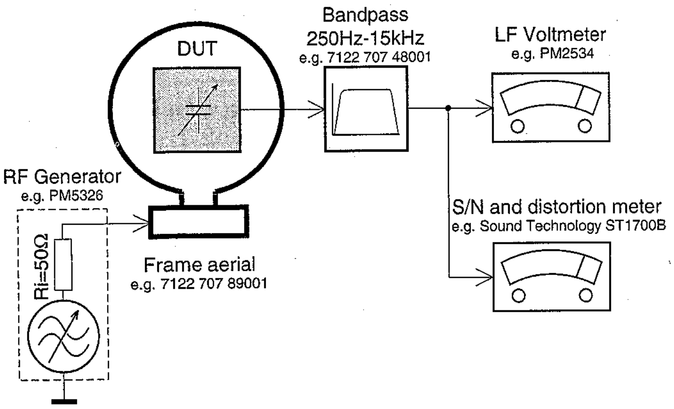
MEASUREMENT SETUP

Tuner FM


DUT
Bandpass
250Hz-15kHz
e.g. 7122 707 48001
LF Voltmeter
e.g. PM2534
RF Generator
e.g. PM5326
Ri=50Ω
S/N and distortion meter
e.g. Sound Technology ST1700B

Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilottone (19kHz, 38kHz).

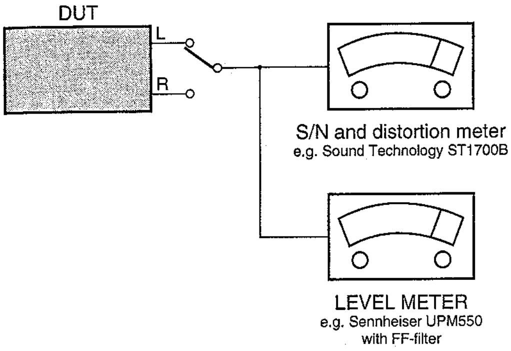
Tuner AM (MW,LW)


Bandpass
250Hz-15kHz
e.g. 7122 707 48001
DUT
LF Voltmeter
e.g. PM2534
RF Generator
e.g. PM5326
S/N and distortion meter
e.g. Sound Technology ST1700B
Ri=50Ω
Frame aerial
e.g. 7122 707 89001

To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday´s cage.
Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

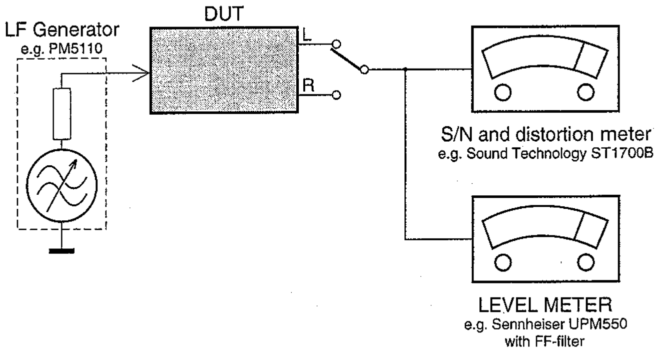
CD

Use Audio Signal Disc SBC429 4822 397 30184
(replaces test disc 3)


DUT
L
R
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071


LF Generator
e.g. PM5110
DUT
L
R
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6 - T20	4822 395 50145
Torx driver T10 extended	4822 395 50423

Cassette:

SBC419 Test cassette CrO2	4822 397 30069
SBC420 Test cassette Fe	4822 397 30071
MTT150 Dolby level 200nWb/M	4822 397 30271

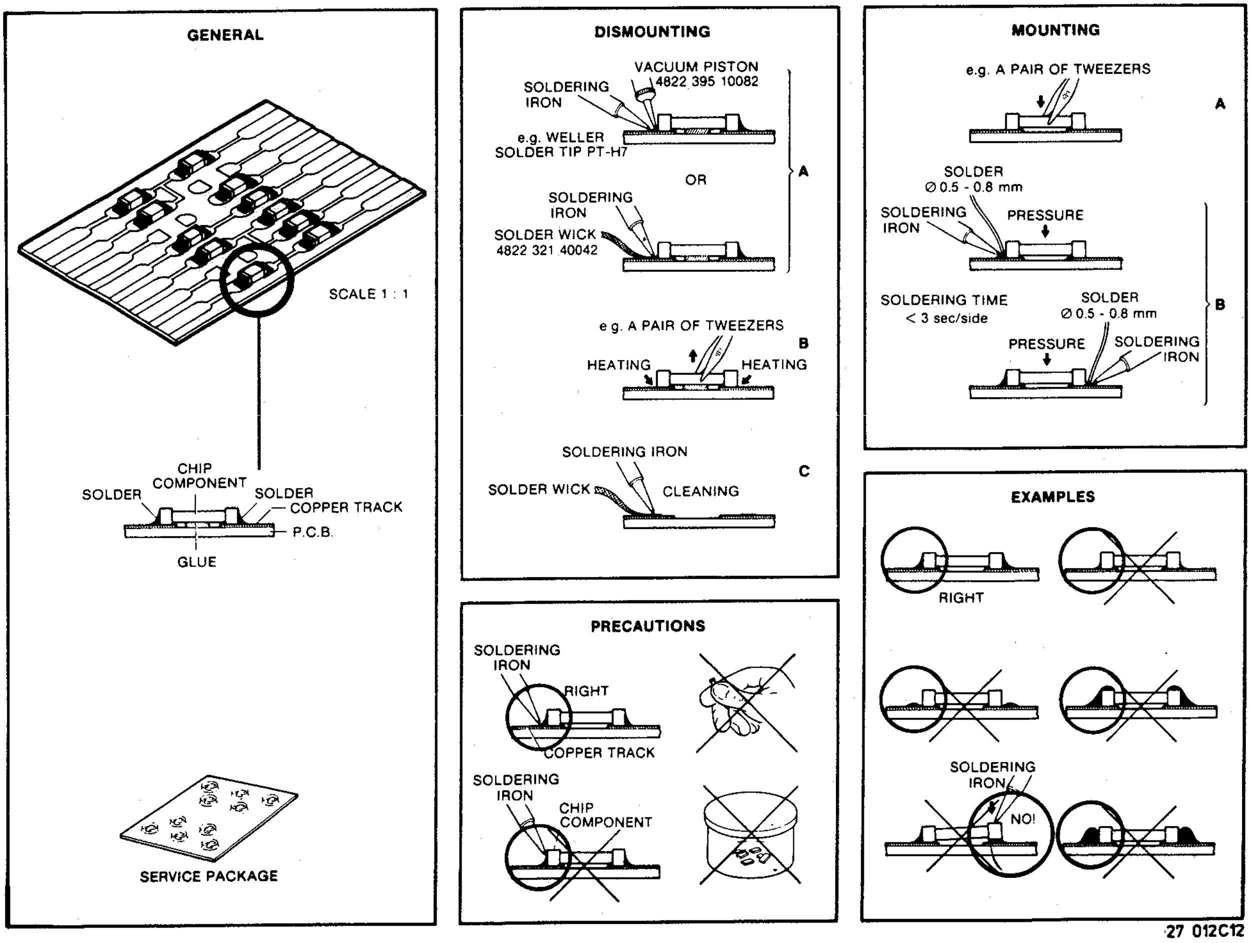
Compact Disc:

SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216

ESD Equipment:

Anti-static table mat - large 1200x650x1.25mm	4822 466 10953
Anti-static table mat - small 600x650x1.25mm	4822 466 10958
Anti-static wristband	4822 395 10223
Connector box (1MΩ)	4822 320 11307
Extension cable (to connect wristband to conn. box)	4822 320 11305
Connecting cable (to connect table mat to conn. box)	4822 320 11306
Earth cable (to connect product to mat or box)	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 320 10671
Wristband tester	4822 344 13999

HANDLING CHIP COMPONENTS


GENERAL
SCALE 1 : 1
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE
DISMOUNTING
VACUUM PISTON 4822 395 10082
SOLDERING IRON
e.g. WELLER SOLDER TIP PT-H7
OR
A
SOLDERING IRON
SOLDER WICK 4822 321 40042
e g. A PAIR OF TWEEZERS
B
HEATING
HEATING
SOLDERING IRON
C
SOLDER WICK
CLEANING
MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER Ø 0.5 - 0.8 mm
SOLDERING IRON
PRESSURE
SOLDERING TIME < 3 sec/side
SOLDER Ø 0.5 - 0.8 mm
B
PRESSURE
SOLDERING IRON
PRECAUTIONS
SOLDERING IRON
RIGHT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT
EXAMPLES
RIGHT
SOLDERING IRON
NO!

27 012C12

ESD

(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utiliséés les piéces de rechange identiques à celles spécifiées.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

CLASS 1
LASER PRODUCT
3122 110 03420

(GB) Warning !

Invisible laser radiation when open.
Avoid direct exposure to beam.

(S) Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

(SF) Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

(DK) Advarse !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

General Information

- The typeplate is located at the rear of the set.
- Recording is permissible if copyright or other rights of third parties are not infringed.

1 All unnecessary packaging material has been omitted. We have done our utmost to make the packaging easy to separate into three mono-materials:
  - cardboard (box)
  - expandable polystyrene (buffer)
  - polythene (bags, protective foam sheet).

  Please observe the local regulations regarding the disposal of these packaging materials.
2 Your set consists of materials which can be recycled and reused if disassembled by a specialized company. Please follow local regulations on recycling your old set.
3 Do not dispose exhausted batteries with your household waste. Dispose batteries according to local regulations.
4 Note: Switching off the standby mode overnight (remove the AC power cord from the wall socket) will save energy.

Safety Information

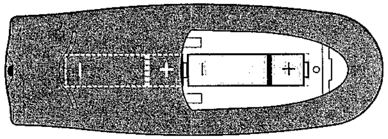
- Before operating the system, check that the operating voltage indicated on the typeplate (or the voltage indication beside the voltage selector) of your system is identical with the voltage of your local power supply. If not, please consult your dealer. The type plate is located at the rear of your system.
- When the system is switched on, do not move it around.
- Place the system on a solid base (e.g. a cabinet).
- Place the system in a location with adequate ventilation to prevent internal heat build-up in your system.
- Do not expose the system to excessive moisture, rain, sand or heat sources.
- Under no circumstances should you repair the unit yourself, as this will invalidate the warranty!
- If the system is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lens of the CD unit inside the system. Should this occur, the CD player will not operate normally. Leave the power on for about one hour with no disc in the unit until normal playback is possible.
- Electrostatic discharge may cause unexpected problems. See whether these problems disappear if you unplug the AC power cord and plug it in again after a few seconds.
- **To disconnect the system from the power supply completely, remove the AC power plug from the wall socket.**

Accessories (Supplied)

- Remote control
- Batteries (2 x AAA size) for remote control
- AM loop antenna
- FM antenna wire
- AC power cord

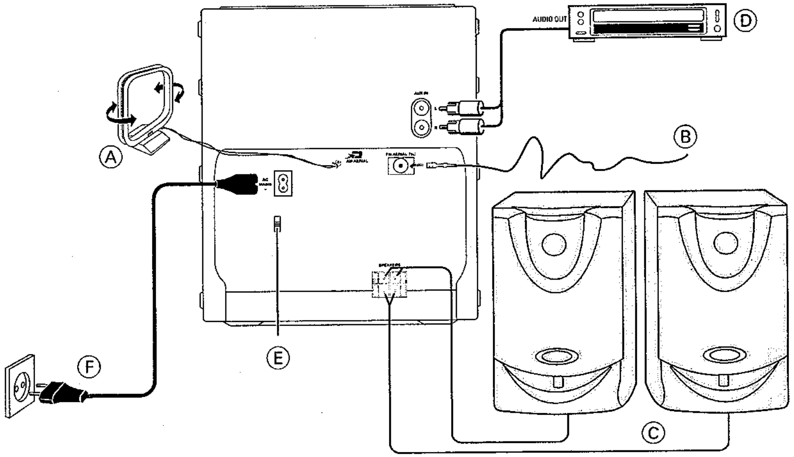
Inserting the batteries into the Remote Control

- Insert the batteries (Type R03 or AAA) into the remote control transmitter as shown in the battery compartment.



- To avoid damage from possible battery leakage, remove exhausted batteries or batteries that will not be used for a long time. For replacement use type R03 or AAA batteries.

Rear Connection



Ⓐ AM Antenna Connection

Connect the supplied loop antenna to the AM AERIAL terminal. Adjust the position of the AM loop antenna for the best reception.

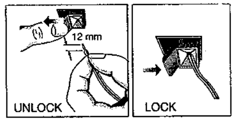
Ⓑ FM Wire Antenna Connection

Connect the supplied FM wire antenna to the FM 75 Ω terminal. Adjust the position of the FM antenna for the best reception.

Outdoor Antenna
For better FM stereo reception connect an outdoor FM antenna to the FM AERIAL 75 Ω terminal using a 75 Ω coaxial wire.

Ⓒ Speaker Connections

- Connect the right speaker to terminal **R**, with the red wire to + and the black wire to −.
- Connect the left speaker to terminal **L**, with the red wire to + and the black wire to −.
- Clip the stripped portion of the speaker wire as shown.



Ⓓ Connecting other equipment to your system

You can connect TV, Laser Disc player, VCR or DVD (Digital Video Disc) audio left and right outputs to the AUX IN terminal at the rear of the system.

Ⓔ Adjusting the Operating Voltage

(for specific versions only)

Before connecting the AC power cord to a wall outlet, make sure that the voltage selector at the rear of the system is set to the local power line voltage. If not, reset the selector before connecting to the wall outlet.

Ⓕ AC Power Supply

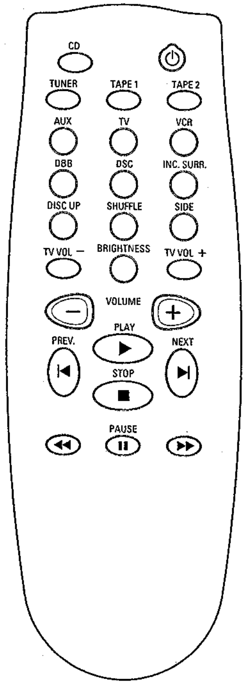
After all other connections have been made, connect the AC power socket to the set and the AC power plug to the wall outlet.

Remote Control Functions

- First select the source you wish to control by pressing one of the source select keys on the remote control (e.g. TUNER, TAPE 1, TAPE 2, CD, AUX, TV or VCR).
- Then select the desired function (PLAY, NEXT, etc.).

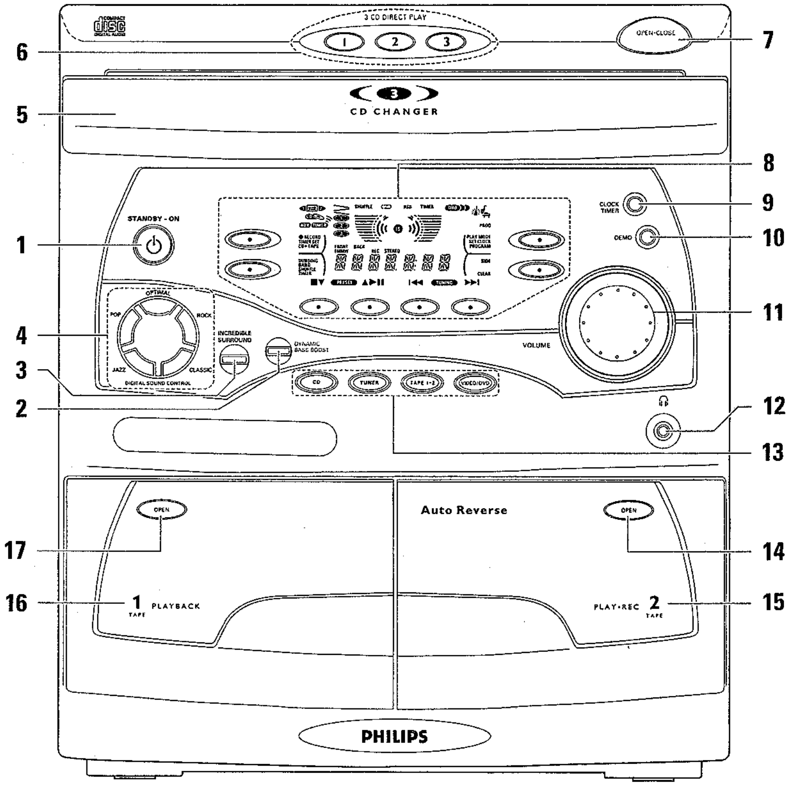
Notes:

- Whenever a remote control button is pressed, the source icon on the display will flicker. This indicates the remote control signal is received by the set.
- For TV/VCR operation, the TV or VCR must use the RC-5 code remote control system.


CD
⏻
TUNER
TAPE 1
TAPE 2
AUX
TV
VCR
DBB
DSC
INC. SURR.
DISC UP
SHUFFLE
SIDE
TV VOL –
BRIGHTNESS
TV VOL +
–
VOLUME
+
PLAY
PREV.
NEXT
STOP
PAUSE

⏻	to switch the unit to standby mode.
CD	to select CD mode.
TUNER	to select TUNER mode.
TAPE 1	to select TAPE DECK 1.
TAPE 2	to select TAPE DECK 2.
AUX	to select VIDEO/DVD or external mode.
TV	to select TV mode.
VCR	to select VCR mode.
DBB	to switch on or off dynamic bass boost.
DSC	to select digital sound control: JAZZ, CLASSIC, ROCK, POP or OPTIMAL.
INC. SURR.	to switch on or off the Incredible Surround sound effect.
DISC UP	to select the next disc tray for playback.
SHUFFLE	to play CD tracks at random.
SIDE	to select the direction of play for TAPE DECK 2.
BRIGHTNESS	to select the brightness level of the display screen.
TV VOLUME +/–	to adjust the TV (RC 5 code) volume.
VOLUME +/–	to adjust the volume of the system.
PLAY ▶	to start playback in CD, TAPE or VCR mode.
STOP ■	to stop playback in CD, TAPE or VCR mode.
⏮ PREV. / NEXT ⏭	
for TUNER	to select a lower/higher tuner preset station.
for CD	to select previous/next CD track.
for TV/VCR	to select previous/next channel.
PAUSE ⏸	to interrupt play in CD, TAPE or VCR mode.
◀◀ / ▶▶	
for TUNER	to select a lower/higher frequency.
for CD	to search a particular passage.
for TAPE	to fast rewind/forward the cassette.

Front View


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
3 CD DIRECT PLAY
OPEN•CLOSE
CD CHANGER
STANDBY • ON
CLOCK TIMER
DEMO
VOLUME
INCREDIBLE SURROUND
DYNAMIC BASS BOOST
DIGITAL SOUND CONTROL
OPTIMAL
POP
ROCK
JAZZ
CLASSIC
CD
TUNER
TAPE 1•2
VIDEO/DVD
OPEN
Auto Reverse
1 PLAYBACK TAPE
PLAY•REC 2 TAPE
PHILIPS

Front View

1 **STANDBY - ON**
   - to switch the set on or to standby mode.

2 **DYNAMIC BASS BOOST (DBB)**
   - to switch on bass boost to enhance bass response or to switch off bass boost.

3 **INCREDIBLE SURROUND**
   - to switch on or off the Incredible Surround sound effect.

4 **DIGITAL SOUND CONTROL (DSC)**
   - to select the desired sound effect : JAZZ, POP, OPTIMAL, ROCK or CLASSIC.

5 **CD CAROUSEL TRAY**

6 **3 CD DIRECT PLAY**
   - to select play for each CD in the tray.

7 **OPEN•CLOSE**
   - to open or close the CD carousel tray.

8 **SMART MENU USER INTERFACE AND DISPLAY**
   - to select the respective control functions for Tuner, CD, Tape and Video/DVD.

9 **CLOCK•TIMER**
   - to set clock or timer.

10 **DEMO**
   - to display the various features offered by the system.

11 **VOLUME**
   - to adjust the volume level.

12 **HEADPHONES** 🎧
   - to connect headphones jack.

13 **SOURCE SELECTION**
   - to select the following:

CD : to switch to CD mode.
TUNER : to switch to Tuner mode.
TAPE 1-2 : to switch to Tape 1 or 2 mode.
VIDEO/DVD : to switch to external sources (e.g. DVD, TV, Laser Disc or VCR sound).

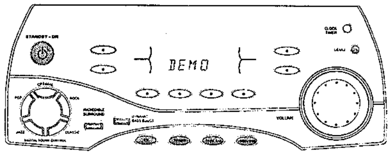
14 **OPEN**
   - to open TAPE DECK 2 cassette compartment.

15 **TAPE DECK 2**

16 **TAPE DECK 1**

17 **OPEN**
   - to open TAPE DECK 1 cassette compartment.

Demo mode



The system has a demonstration mode that shows the various features offered by the system. Whenever the system is switched on from the wall socket, the demonstration mode will start automatically.

To stop demonstration mode
- Press **DEMO**, **STANDBY - ON**, **CD**, **TUNER**, **TAPE 1-2**, **VIDEO/DVD**, CD **OPEN•CLOSE** or **3 CD DIRECT PLAY** button on the system (or ⏻, **CD**, **TUNER**, **TAPE 1**, **TAPE 2**, **AUX**, **TV** or **VCR** on remote control) to stop the demonstration mode.

To switch on demonstration mode
- Press **DEMO**.
  → The display will show "DEMO", then a demonstration of the various features will follow.

Important:
Before you begin operating the system, complete the preparation procedures.

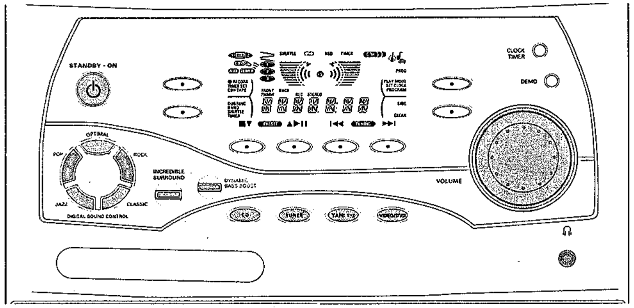
Switching the system ON

- Press **STANDBY-ON**, **CD**, **TUNER**, **TAPE 1-2** or **VIDEO/DVD** (or **CD**, **TUNER**, **TAPE 1**, **TAPE 2** or **AUX** on the remote control).

  You can also switch on the system by pressing the **OPEN•CLOSE** or any one of the **3 CD DIRECT PLAY** buttons.

Switching the system to standby mode

- Press **STANDBY-ON** again (or ⏻ on the remote control).



Volume Adjustment

Rotate **VOLUME** right or left (or press **VOLUME** + or — on the remote control) to increase or decrease the sound level.

For Personal Listening
Connect the headphones jack to the 🎧 socket at the front of the set. The speakers will be muted.

Selecting the Sound Source

- Press the respective source selection: **CD**, **TUNER**, **TAPE 1-2** or **VIDEO/DVD** (or **CD**, **TUNER**, **TAPE 1**, **TAPE 2** or **AUX** on the remote control).
  → The display indicates the selected sound source.

Note:
For external source, ensure that you had connected the audio left and right outputs of the external equipment (TV, VCR, Laser Disc player or DVD) to the AUX IN sockets.

Digital Sound Control (DSC)

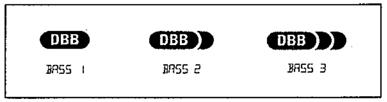
The DSC feature creates a realistic atmosphere for the style of music you select using the latest digital sound technology.

- To enjoy a special sound effect, press **JAZZ** ( ), **POP** ( ), **CLASSIC** ( ), **ROCK** ( ) or **OPTIMAL**.
- You can also press **DSC** on the remote control to select the respective sound setting.

Dynamic Bass Boost (DBB)

There are 3 settings for the DBB mode to enhance the bass response. You can press DBB on the set or remote control.

- Press **DBB** briefly to select the various level of bass boost.
  → The DBB button lights up.
  → The display message "BASS 1, 2 or 3" will scroll across the display.
  → The display will be as follows:

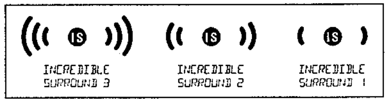


To switch off DBB
- Press **DBB** briefly until the DBB button light is switched off and "BASS OFF" scroll across the display.

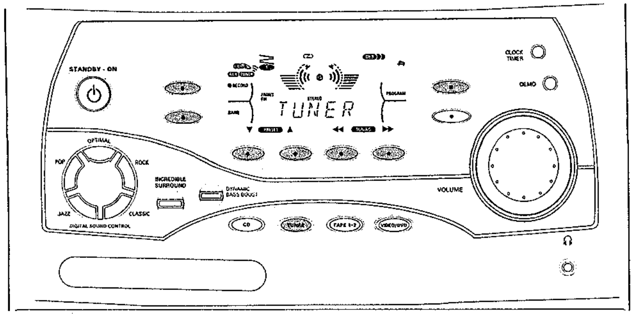
Incredible Surround

There are 3 settings for the Incredible Surround sound mode to create a phenomenal surround sound effect. You can press Incredible Surround on the set or remote control.

- Press **INCREDIBLE SURROUND** to select the various level of surround sound.
  → The INCREDIBLE SURROUND button lights up.
  → The display message "INCREDIBLE SURROUND 3, 2 or 1" will scroll across the display.
  → The display will be as follows:

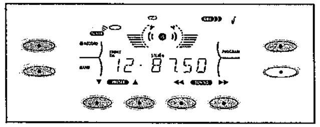


To switch off Incredible Surround
- Press **INCREDIBLE SURROUND** until the INCREDIBLE SURROUND button light is switched off and "INCREDIBLE SURROUND OFF" scroll across the display.



Tuning to radio stations

1 Press **TUNER** on the unit or on the remote control to select TUNER mode.
   → First 'TUNER' appears on the display and after a few seconds it will show the current frequency or the station name if available.
   The available display button functions light up:



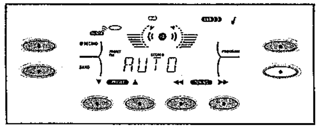
2 Press BAND to select the desired waveband : FM or MW.
3 Press TUNING ◀◀ or ▶▶ for more than one second and release.
   → The display will show 'SEARCH' until a station with sufficient signal strength is found.
- Repeat this procedure until the desired station is reached.
- To tune to a weak station, briefly press TUNING ◀◀ or ▶▶ until the display shows the right frequency and/or when the best reception has been obtained.

Note:
If you briefly press TUNING ◀◀ or ▶▶ (◀◀ or ▶▶ on the remote control), the frequency changes step by step.

Storing Preset Stations

You can store up to 20 stations in the memory. When a preset station is selected, the preset number appears next to the frequency on the display.

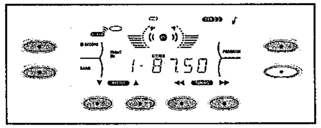
Automatic programming



1 Press **TUNER** on the unit or on the remote control.
2 Press PROGRAM for more than one second.
   → PROGRAM flashes and 'AUTO' is displayed.
   → Every available station will be stored automatically. The frequency and preset number will be displayed briefly.
   → It will stop searching when all the available stations are stored or the memory for 20 preset stations is used.
   → The set will remain tuned to the last stored preset number.
- You can cancel the automatic programming by pressing PROGRAM or ■.

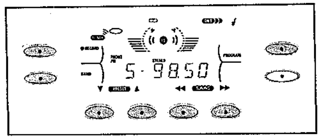
Note:
If you want to reserve a section of preset numbers, for example preset number 1 to 9, select preset 10 before starting automatic programming now only the preset numbers 10 to 20 will be programmed.

Manual programming
1 Press **TUNER** on the unit or on the remote control.
2 Press PROGRAM for less than one second.
   → PROGRAM flashes on the display.



3 Press BAND to select the desired waveband : FM or MW.
4 Press TUNING ◀◀ or ▶▶ to tune to the desired frequency.
5 Press PRESET ▼ or ▲ (or **PREV |◀ / NEXT ▶|** on the remote control) to select a preset number.
6 Press PROGRAM again.
   → PROGRAM stop flashing, and the station is stored.
- Repeat the above procedure to store other preset stations.

Tuning to Preset Stations



- Press PRESET ▼ or ▲ (or **PREV |◀ / NEXT ▶|** on the remote control) to select the desired preset number.
   → The preset number, frequency and waveband appear on the display.

● Record Tape

1 As soon as you press ● RECORD, the current sound will be recorded on TAPE DECK 2, provided a cassette suitable for recording is loaded.
2 To stop recording, press ■ (or **STOP ■** on the remote control).

Changing the FM/MW tuning grid

(For specific versions only)

The frequency step can be changed if necessary. In North and South America, the frequency step between adjacent channels in the FM/MW band is 100 kHz/10 kHz. In other parts of the world, it is 50 kHz/9 kHz. The frequency step presetted in the factory is 9 KHz.

For FM Band : change from 50 kHz to 100 kHz or vice versa
For MW Band : change from 9 kHz to 10 kHz or vice versa

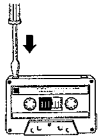
Changing of tuning grid will erase all previously stored preset stations.

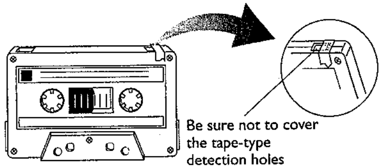
While in TUNER mode, press the **TUNER** button for ***more than 5 seconds***. Display will shows "GRID 10" or "GRID 9".

Note:
GRID 9 indicates that the tuning grid is in step of 50 kHz in FM band and 9 kHz in MW band. GRID 10 indicates that the tuning grid is in step of 100 kHz in FM band and 10 kHz in MW band.

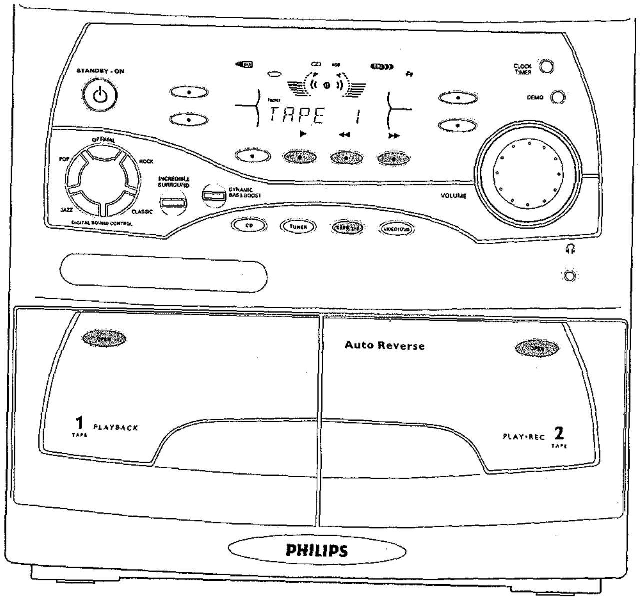
General Information

- For recording, use only a cassette of IEC type I (normal cassette) or IEC type II (Chrome). The respective cassette type is selected automatically.
- The tape in the cassette is secured at both ends with a leader tape. At the beginning and end of a cassette, nothing will be recorded for six to seven seconds.
- The recording level is set automatically, regardless of the position of VOLUME.
- Check and tighten slack tape with a pencil before use. Slack tape may get jammed or may burst in the mechanism.
- To prevent accidental recording, break out the tab on the left shoulder of the cassette side you want to protect.
- To re-record the cassette, cover each hole with cellophane tape. Do not cover the Chrome tape detection hole when covering the tab opening.

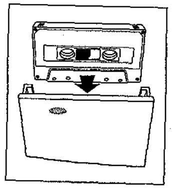



Be sure not to cover the tape-type detection holes

- C-120 tape is extremely thin and may be easily deformed or damaged. It is not recommended for use in this unit.
- Store the cassettes at room temperature and do not put them too close to a magnetic field (for example, transformers, TVs or speakers).



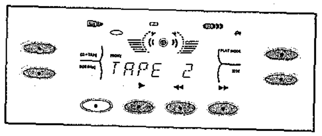
Loading a cassette



- Press **OPEN**.
- The cassette compartment door opens.
- Load the cassette with the open side downward and the full spool to the left.
- Close the cassette compartment door.
  - → The deck automatically selects the cassette type (NORMAL or CHROME (CrO_2).

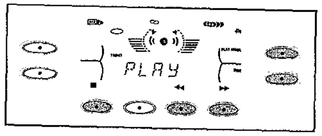
Tape Playback

1 Press **TAPE 1-2** (or **TAPE 1 / TAPE 2** on the remote control) to select either TAPE DECK 1 or TAPE DECK 2 mode.



2 Load the cassette into the desired **cassette deck**.

3 Press ▶ (or **PLAY** ▶ on the remote control) to start playback.



3a (For Tape Deck 2 only)
Press SIDE (or **SIDE** on the remote control) to change the direction of the play mode.
→ The FRONT or BACK flag appears in the display, depending on the side selected.

3b (For Tape Deck 2 only)
Press PLAY MODE to select the different type of play mode (see continuous playback).

4 Press ■ (or **STOP** ■ on the remote control) to end playback.

Note:
When the cassette has stopped playing, the set will switch to the standby mode automatically after 15 minutes if no button is pressed.

Continuous Playback (only on TAPE DECK 2)

The PLAY MODE enables you to select *the different play modes.*

⇄ :	recording or playback on one side of the cassette in the normal or reverse direction. The cassette stops at the end of one side.
⊃ :	recording or playback on both sides of the cassette; first in one direction and then in the reverse direction. The cassette then stops.
⊂⊃ :	continuous playback on both sides of the cassette up *to a maximum* of 5 times per side unless you press ■.

Winding/Rewinding

At the stop mode

1 You can rewind or wind the cassette by pressing ◀◀ or ▶▶, (◀◀ or ▶▶ on the remote control) respectively.
→ The cassette will stop automatically at the end of the winding or rewinding

2 Press ■ (or **STOP** ■ on the remote control) to stop winding or rewinding.

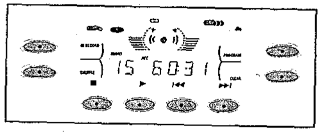
During playback

1 You can search for a particular passage or beginning of a track by pressing and holding ◀◀ or ▶▶, (◀◀ or ▶▶ on the remote control) respectively.
→ During searching, the sound is reduced to a low volume.
→ When you release ◀◀ or ▶▶, the cassette continues playing.

Note:
During winding or rewinding a cassette, it is possible to select another source mode (e.g. TUNER, CD or VIDEO/DVD mode).

Recording from other sources (only on TAPE DECK 2)

1 Press **TAPE 1-2** to select **tape deck 2**.
2 Load a blank cassette into **tape deck 2**.
3 Press SIDE to change to the desired direction of the play *mode.*
→ *The* FRONT or BACK flag appears in the display, depending on the side selected.
4 Press PLAY MODE to select the play mode (⇄ or ⊃).
5 Press **CD**, **TUNER** or **VIDEO/DVD**.



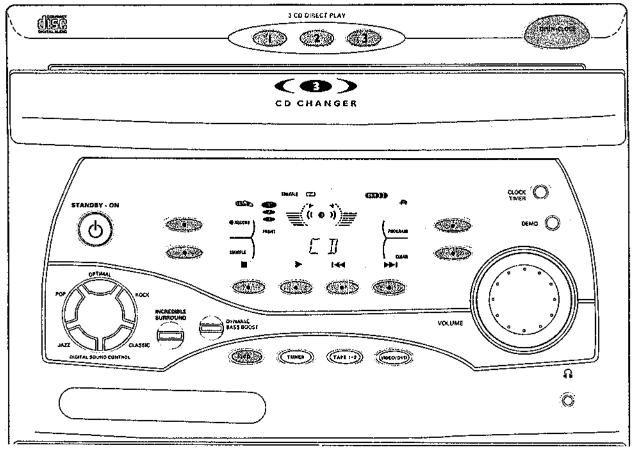
6 Press ● RECORD to start recording.
→ The RECORD flag starts flashing.
7 Press ■ to stop recording.

Notes:
1. Only ⇄ or ⊃ mode is available during recording.
2. For CD Synchro-start recording see Compact Disc section.
3. During recording, it is not possible to listen to another sound source.

Dubbing cassettes (from TAPE DECK 1 to TAPE DECK 2)

1 Press **TAPE 1-2** to select **tape deck 2**.
2 Load the prerecorded cassette into **tape deck 1** and a blank *cassette into* **tape deck 2**.
→ Make sure that both cassettes have their full spools to the left.
3 Press SIDE to select the FRONT side of the casette in **tape deck 2**.
4 Press DUBBING and then press ◀◀ or ▶▶ for respective dubbing speed mode.
→ NORMAL (normal speed) or FAST (high speed) appears on the display.
5 Press DUBBING again to start recording.
→ The RECORD flag starts flashing.
→ HSD appears on the display for high speed dubbing.
6 Press ■ to stop dubbing.

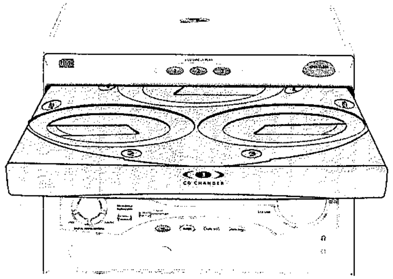
Notes:
- At the end of side A, flip the cassettes to side B and repeat the procedure.
- Dubbing of cassettes is only possible in the TAPE DECK 2. To ensure good dubbing, use cassettes of the same length.
- During high speed dubbing in Tape mode, the sound is reduced to a low volume.
- You can switch to other sound source while dubbing.



Warning!
1) This set is designed for conventional CDs. Do not use any accessories like disc stabilizer rings or CD treatment sheets, etc., which may damage the CD mechanism.
2) Do not load more than one disc into each tray.
3) When the CD changer is loaded with CD(s), do not turn over or shake the unit as this may jam the changer mechanism.

You can load up to three discs in the CD changer for continuous play without interruption. In addition to the conventional 12-cm disc, 8-cm discs can also be used without an adaptor.

Loading the CD Changer



1 Press **CD** on the unit or on the remote control to select CD mode.
2 Press **OPEN•CLOSE**.
→ The CD compartment slides out.
3 Load a CD with the ***printed side up*** in the right tray.
- You can load another disc in the left tray.

- To load the third disc, press the corresponding **3 CD DIRECT PLAY** button of the empty tray.
→ The CD changer carousel will rotate until the empty tray is at the right hand side and is ready for loading.
→ Playback will always start with the outer right disc tray.
4 Press **OPEN•CLOSE** to close the CD compartment.
→ The total number of tracks and playing time of the last selected disc appear on the display.

The following display indications will help you to know whether the disc trays are empty or loaded.

○ – indicates that disc tray 1 is empty.
● – indicates that disc tray 2 is loaded with a disc.
● – indicates that disc tray 3 is loaded and selected.

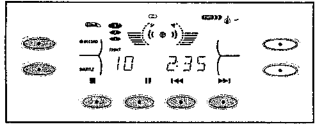
3 CD Direct Play button

3 CD DIRECT PLAY
1
2
3

– When the button is green, it indicates that there is no disc loaded in the disc tray.
– When the button is red, it indicates that there is a disc loaded in the disc tray.

Playing a CD

1 Press ▶ (or **PLAY** ▶ on the remote control) to start playback.
→ The disc tray, track number and elapsed playing time of the current track appear on the display.



- To interrupt play, press **II** (or **PAUSE II** on the remote control).
→ The playing time flashes.
- To resume play, press ▶ again (or **PLAY** ▶ on the remote control).
2 To stop play, press ■ (or **STOP** ■ on the remote control).

Note:
All the available discs will play once, then stop. When the CD has stopped playing, the set will switch to the standby mode after 15 minutes if no button is pressed.

When the CD tray is closed, you can play a CD directly by pressing the **3 CD DIRECT PLAY (1 - 3)** buttons on the set (or **DISC UP** button on the remote control). The CD player will stop at the end of playback of the selected disc.

3 CD DIRECT PLAY
1
2
3

Selecting a desired track

Selecting a desired track at the stop mode
1 Press |◀◀ or ▶▶| (**PREV** |◀ / **NEXT** ▶| on the remote control) until the desired track appears on the display.
2 Press ▶ (or **PLAY** ▶ on the remote control) to start playback.
→ The selected track number and elapsed playing time appear on the display.

Selecting a desired track during play mode
1 Press |◀◀ or ▶▶| (**PREV** |◀ or **NEXT** ▶| on the remote control) until the desired track appears on the display.
→ The selected track number and elapsed playing time appear on the display.
- If you press |◀◀ once it will skip to the beginning of the current track and play the track again.

Searching for a particular passage during play mode

- Press and hold |◀◀ or ▶▶| (◀◀ or ▶▶ on the remote control) until the desired passage is located.
→ After 5 seconds, it will go into high speed search and the volume is reduced.
- Play returns to normal when |◀◀ or ▶▶| is released.

Shuffle

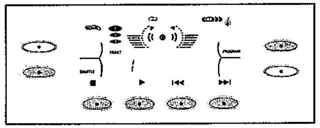
SHUFFLE – playing all the available discs and their tracks in random order. It can also be used when tracks are programmed.

To shuffle all the discs and tracks
1 Press SHUFFLE (or **SHUFFLE** on the remote control).
→ "SHUFFLE" flashes briefly on the display.
→ The SHUFFLE flag, the disc and the track selected at random appear on the display.
- The discs and the tracks will now be played in random order until you press ■.
2 Press SHUFFLE again to resume normal playback.
→ The SHUFFLE flag disappears from the display.

Programming Tracks

Programming tracks of a loaded CD is possible in the stop mode of the CD. The display will indicate the total tracks stored in the program. Up to 40 tracks can be stored in the memory in any order. When 40 tracks are stored and you attempt to store another track, the display will show "PROGRAM FULL".

1 Load the desired discs in the disc trays.
2 Press PROGRAM to start programming.
→ The PROGRAM flag flashes on the display.



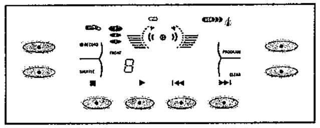
3 Press the desired disc button to select the disc.
4 Press |◀◀ or ▶▶| to select the desired track.
5 Press PROGRAM to store the track.
- Repeat steps **3** to **5** to store other discs and tracks.
6 Press ■ once to end programming mode.
→ The total number of tracks programmed and total playing time appear on the display.

Note:
If the total playing time is more than "99:59" or one of the programmed tracks has a number greater than 30, then "--:--" is displayed instead of the total playing time.

Playing the program
1 Press ▶ (or **PLAY** ▶ on the remote control) to start program playback.
→ "PROGRAM PLAY" appears on the display.
→ The track number and elapsed playing time of the current track will appear on the display.
2 Press ■ (or **STOP** ■ on the remote control) to stop program playback.

Note:
If you press any of the 3 CD DIRECT PLAY buttons, the set will play the selected disc or track and the stored program will be ignored temporary. The PROGRAM flag will also temporarily disappear from the display and then reappear when the playback for the selected disc ends.

Reviewing the program



Reviewing of the program is only possible in the stop mode.
- Press |◀◀ or ▶▶| repeatedly to review the programmed tracks.
- Press ■ to exit review mode.

CD Changer

Erasing the program (in the stop position)
- Press CLEAR on the set.
  → "PROGRAM CLEARED" appears on the display.

Note:
The program is also erased when the set is disconnected from the power supply. If the CD carousel is opened, the tracks belonging to the outer two trays will be erased and "CLEARED" will scroll on the display once.

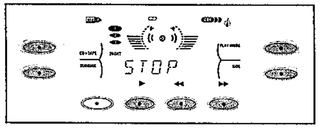
● Record Tape

1 As soon as you press ● RECORD, the current sound will be recorded on TAPE DECK 2, provided a cassette suitable for recording is loaded.
2 To stop recording, press ■ (or **STOP** ■ on the remote control).

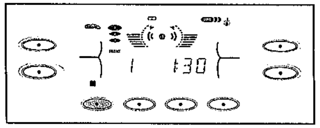
CD Synchro Start Audio Recording

During CD synchro start audio recording,
- It is not advisable to fast forward/rewind your cassette in TAPE DECK 1.
- It is not possible to listen to another sound source.

1 Press **CD** on the unit or on the remote control to select CD mode.
2 Load a disc into the disc tray.
3 You can program the tracks in the order you want them to be recorded (see Programming Tracks). If not, the tracks are recorded according to the selected disc.
4 Press **TAPE 1-2** (or **TAPE 2** on the remote control) to select **tape deck 2**.



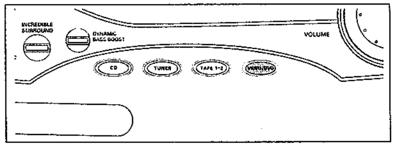
5 Load a blank cassette (full spool to the left) into **tape deck 2**.
6 Press SIDE to select the FRONT side of the cassette.
  → The FRONT flag appears in the display.
7 Press PLAY MODE to select the play mode (⊏ or ⊃) for **tape deck 2**.
8 Press CD ▶ TAPE to start recording.
  → The RECORD flag flashes on the display.
  → The CD starts playing after a seven-second delay to prevent recording on the leader tape at the beginning of the cassette.



9 Press ■ to stop recording.

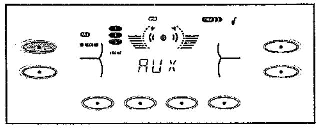
External Connection

Selecting External Connection



If you have connected the audio out of the external equipment (TV, VCR, Laser Disc player or DVD) to the AUX IN sockets, you can hear the enhanced sound from the system.

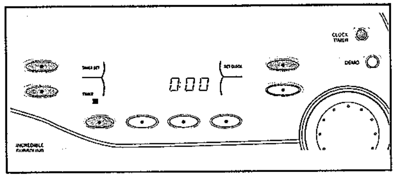
- Press **VIDEO/DVD** on the unit (or **AUX** on the remote control) to select external mode.
  → AUX appears on the display.
  The available display button functions light up:



● Record Tape

1 As soon as you press ● RECORD, the current sound will be recorded on TAPE DECK 2, provided a cassette suitable for recording is loaded.
2 To stop recording, press ■ (or **STOP** ■ on the remote control).

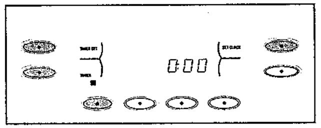
Clock Setting



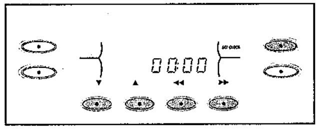
Setting the clock

The clock is in 24-hour mode, e.g. 00:00 or 23:59.

1 Press **CLOCK•TIMER**.
  → "0:00" starts flashing.



2 Press SET CLOCK.
  → "00:00" starts flashing



3 Set the hour with ▼ or ▲.
4 Set the minute with ◀◀ or ▶▶.
5 Press SET CLOCK again to store the setting.
  → The clock starts running.

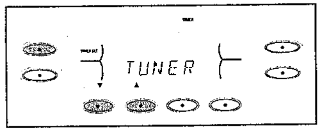
Note:
– When a power interruption occurs, the clock settings are erased.

Setting the Timer

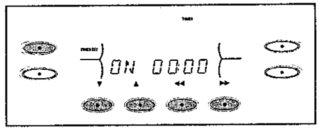
- The system can switch on to CD, TUNER or TAPE 1 mode automatically at a preset time. It can serve as an alarm to wake you up. After half an hour from the preset time, the system will return to the standby mode if no button is pressed.
- Before setting the timer, make sure the clock is set correctly.
- The timer works only once for each setting.
- **The volume of the timer will be at the last setting before the set is switched to standby mode.**

Timer Setting

Timer Setting
1 Press **CLOCK•TIMER**.
2 Press TIMER SET.
  → The TIMER flag flashes.



3 Press ▼ or ▲ to select the desired source.
  → The display will switch as follows:
  TUNER → TAPE 1 → CD → TUNER ...
4 Press TIMER SET to confirm your selection.
  → The display will show "ON 00:00" and "00:00" flashes.



5 Press ▼ or ▲ to set the hour for the timer to start.
6 Press ◀◀ or ▶▶ to set the minutes for the timer to start.
7 Press TIMER SET to store the start time.
  → The TIMER is now set.
  → The TIMER flag remains lit.

To stop the TIMER
1 Press **CLOCK•TIMER**.
2 Press TIMER on the set.
  → The TIMER is now off.

To start the TIMER again
1 Press **CLOCK•TIMER**.
2 Press TIMER on the set.
  → The display will show the last set start time of the TIMER and its flag.
  → The TIMER flag remains lit.

Notes:
1. If the source selected is TUNER, the last tuned frequency will be switched on.
2. If the source selected is CD, the first track of the last selected disc will be played. If the CD trays are empty, the TUNER source will be selected instead.
3. If the source selected is TAPE 1, when the preset time is reached during high speed dubbing, the TUNER source will be selected instead.

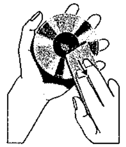
Maintenance

Cleaning the Cabinet

- Use a soft cloth slightly moistened with a mild detergent solution. Do not use a solution containing alcohol, spirits, ammonia or abrasive.

Cleaning Discs

- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the center out.

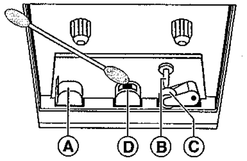


- Do not use solvents such as benzine, thinner, commercially available cleaners, or antistatic spray intended for analog records.

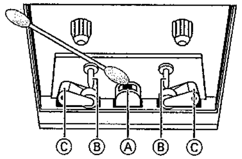
Cleaning the Heads and the Tape Paths

- To ensure good recording and playback quality, clean the heads Ⓐ and Ⓓ, the capstan(s) Ⓑ, and pressure roller(s) Ⓒ after every 50 hours of tape operation.

Tape Deck 1



Tape Deck 2



- Use a cotton swab slightly moistened with cleaning fluid or alcohol.
- You can also clean the head by playing a cleaning tape through once.

Demagnetizing the heads

- Use a demagnetizing cassette available at your dealer.

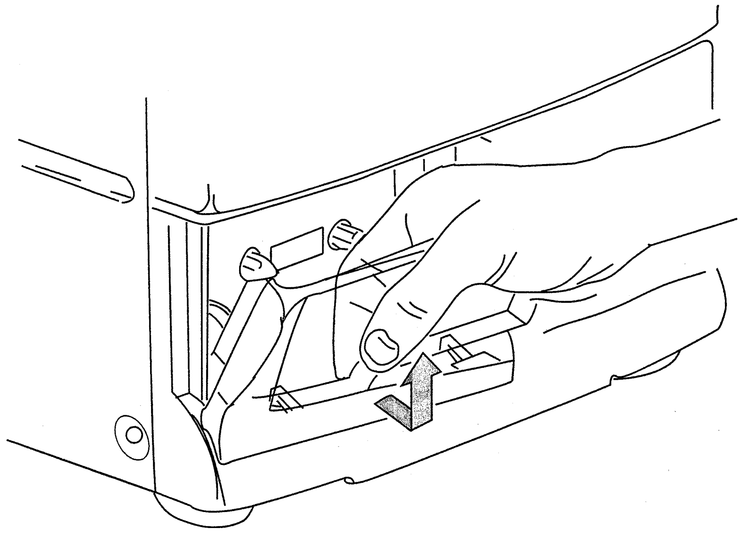
Warning! Under no circumstances should you try to repair the set yourself, as this will invalidate the warranty.

- If a fault occurs, check the points listed below before taking the set for repair.
- Should any problems persist after you have made these checks, consult your nearest dealer or service center.

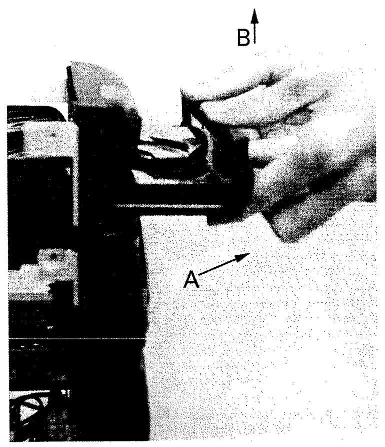
SYMPTOM	POSSIBLE CAUSE	REMEDY
RADIO RECEPTION		
The STEREO indicator flashes.	The signal is too weak.	Adjust the antenna.
Severe hum or noise.	The signal strength is too weak.	Adjust the antenna.
	The TV or VCR is too close to the stereo system.	Separate the stereo system from the TV or VCR.
		Connect an external antenna for better reception.
CASSETTE DECK OPERATION		
"CANNOT RECORD" is displayed.	No cassette in the cassette deck.	Insert a blank cassette into the cassette deck.
	The protection tab has been broken.	Put a piece of clear adhesive tape over the opening.
"RECORDING ACTIVE" is displayed.	A recording is active	Stop the recording or wait until it is finished.
Recording or playback cannot be made or there is a decrease in audio level.	Dirty tape heads.	See section on cassette deck maintenance.
	Magnetic build-up in the record/playback head.	Use demagnetizing cassette.
Excessive wow or flutter, or sound drop-out.	Contamination of the capstans or pressure rollers.	See section on cassette deck maintenance.
CD PLAYER OPERATION		
"NO DISC" is displayed.	The disc is inserted upside down.	Place CD with printed side up.
	Moisture condensation.	Wait until lens has adjusted to normal room temperature.
	There is no disc in the CD tray.	Insert a CD.
	The CD is dirty, badly scratched or warped.	Replace or clean the CD.
GENERAL		
Set not working.	Set does not react when buttons are pressed.	Press STANDBY-ON to switch the unit off, then switch it on again. Or, unplug the AC power plug from the wall outlet, then plug it in again.
No or poor sound.	Volume is not turned up.	Adjust VOLUME.
	The headphones are connected.	Disconnect the headphones.
	Speakers are not connected or are connected wrongly.	Check that the speakers are connected correctly.
		Make sure that the stripped speaker wire is clamped.
Reversed left and right sound.	Speakers are connected wrongly.	Check the speaker connections and speaker location.
Lack of bass sound or apparently imprecise physical location of musical instruments.	Speakers are connected wrongly.	Check the speaker connection for proper phasing, red/black wires to red/black terminals.
Clock blinking.	There was a power disruption.	Reset the clock.
Remote control has no effect on the set.	The distance to the system is too large.	Reduce the distance.
	Batteries are inserted incorrectly.	Insert the batteries correctly.
	Batteries are exhausted.	Replace the batteries.
	Wrong sound source is selected.	Select the sound source before pressing the function button, (PLAY, PREV/NEXT, etc.).
Timer not working.	Timer not on.	Press CLOCK•TIMER on the set to switch on the timer.
	Dubbing/recording is active.	Stop dubbing/recording.
"PRESS DEMO TO EXIT" is displayed.	Demo mode is switched on.	Press STANDBY-ON or DEMO to switch off the demo.

DISMANTLING INSTRUCTIONS

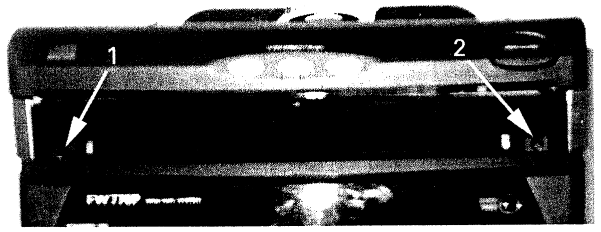
Dismantling of the Cassette Cover



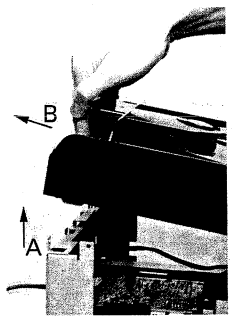
Dismantling of the Front Panel & CDC Module



1) Remove the Top cover, pos 298.
2) Slide the CD tray out
3) Remove the CD cover, pos 238 as indicated

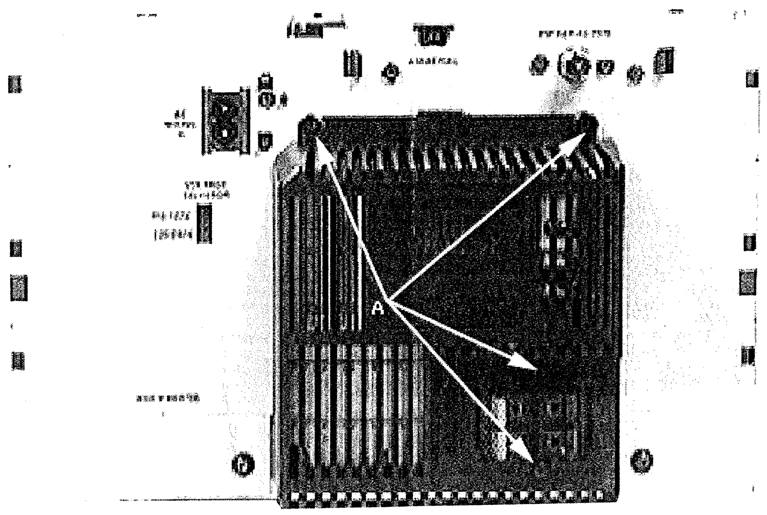


4) Loosen 2 screws at the front

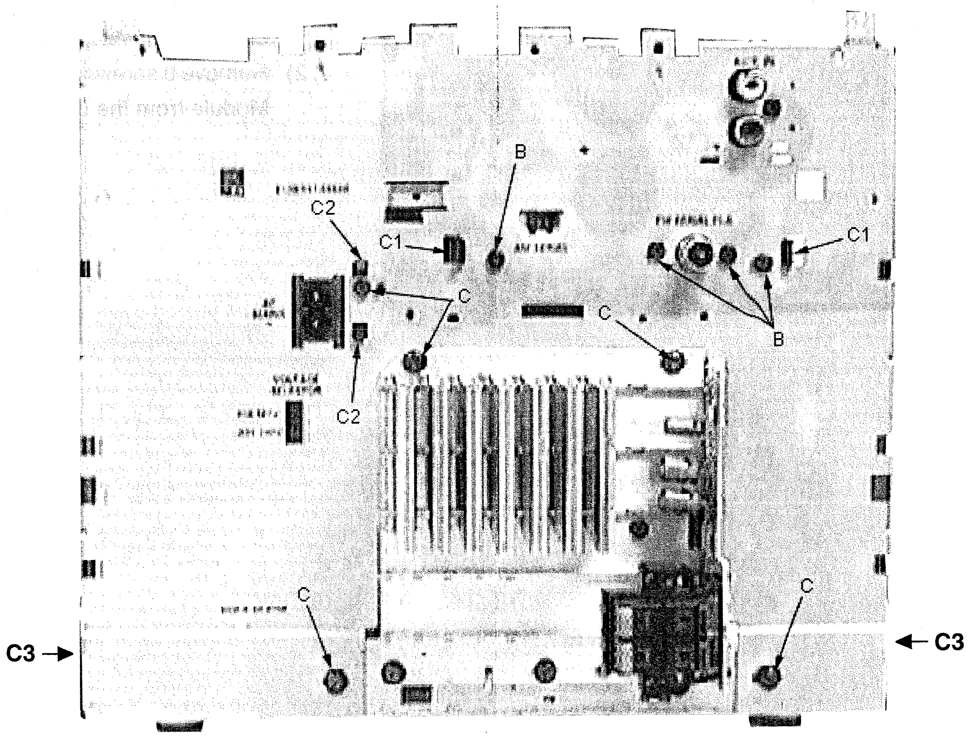


5) Loosen 2 screws at the rear
6) Lift the CDC Module up and remove as indicated
7) Remove 1 screw at the bottom of the Front Cabinet Assembly to separate it from the Bottom plate, pos 295.

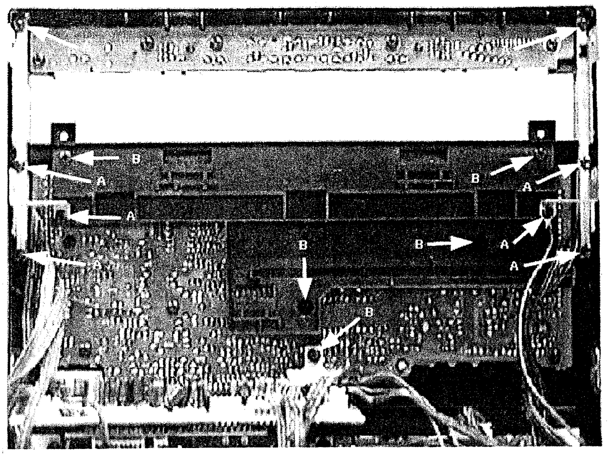
Dismantling of Rear Panel / Power Module



1) Remove the Rucksack, pos 285 by 4 screws A.
2) Remove the Tuner Board Assembly (if necessary) by 4 screws B and 2 catches C1.
3) Remove 5 screws C and uncatch the Bracket mains socket, pos 300 by 2 catches C2.
4) Uncatch 2 catches C3 on both sides of the Rear panel and remove it from the Bottom plate, pos 295.

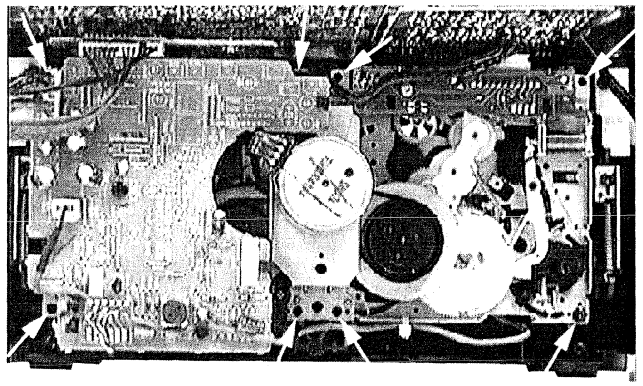


Dismantling of Front Board



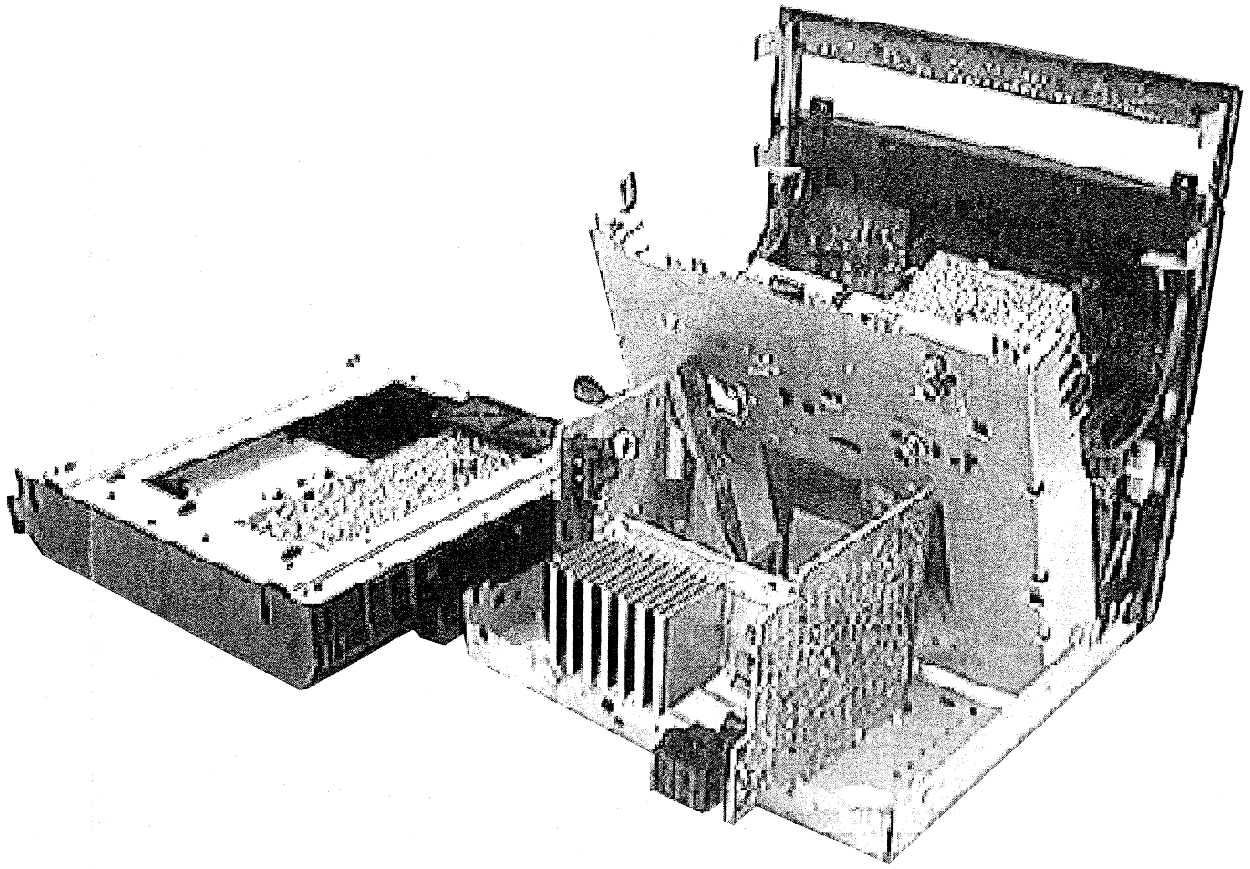
1) Remove the left and right bracket, pos. 260 & 261 by 8 screws A.
2) Remove the Front bracket, pos. 247 by 5 screws B.

Dismantling of Tape Deck Module

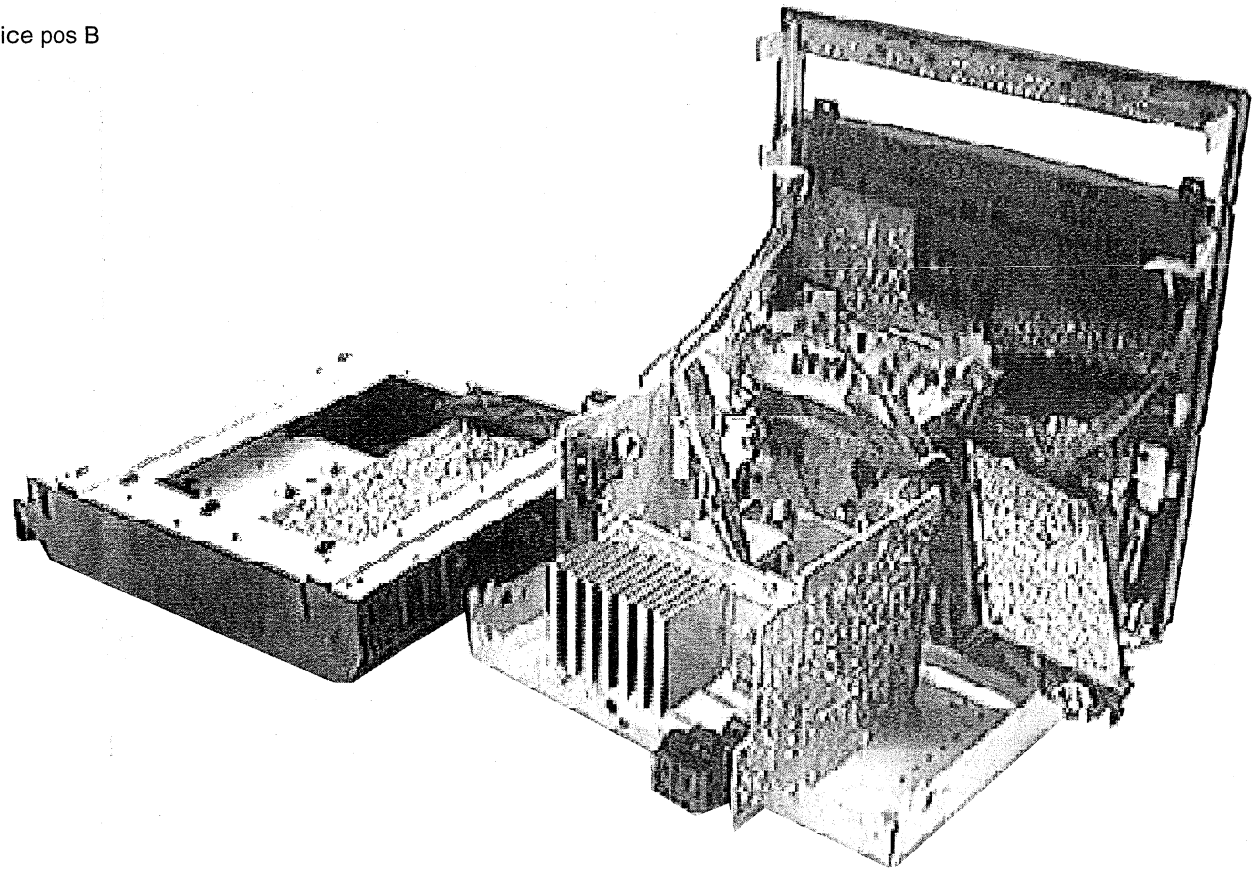


1) Remove 1 screw at the bottom of the Front Cabinet, pos. 200 to separate the Front Cabinet Assembly from the Bottom plate Assembly.
2) Remove 8 screws as indicated to take out the Tape Deck Module from the Front Cabinet.

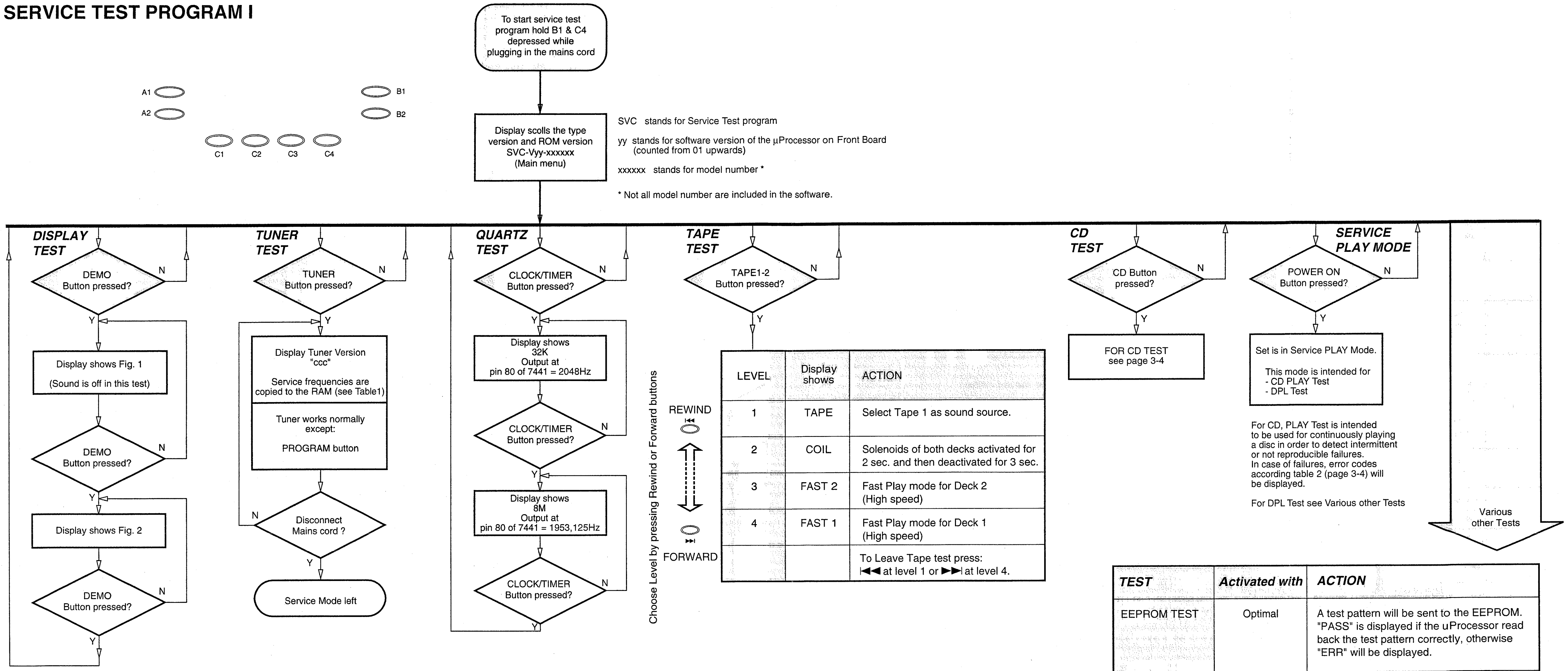
Service pos A



Service pos B



SERVICE TEST PROGRAM I


A1
A2
B1
B2
C1
C2
C3
C4
To start service test program hold B1 & C4 depressed while plugging in the mains cord
Display scolls the type version and ROM version SVC-Vyy-xxxxxx (Main menu)
DISPLAY TEST
DEMO Button pressed?
Display shows Fig. 1 (Sound is off in this test)
DEMO Button pressed?
Display shows Fig. 2
DEMO Button pressed?
TUNER TEST
TUNER Button pressed?
Display Tuner Version "ccc" Service frequencies are copied to the RAM (see Table1)
Tuner works normally except: PROGRAM button
Disconnect Mains cord ?
Service Mode left
QUARTZ TEST
CLOCK/TIMER Button pressed?
Display shows 32K Output at pin 80 of 7441 = 2048Hz
CLOCK/TIMER Button pressed?
Display shows 8M Output at pin 80 of 7441 = 1953,125Hz
CLOCK/TIMER Button pressed?
TAPE TEST
TAPE1-2 Button pressed?
Choose Level by pressing Rewind or Forward buttons
REWIND
FORWARD
CD TEST
CD Button pressed?
FOR CD TEST see page 3-4
SERVICE PLAY MODE
POWER ON Button pressed?
Set is in Service PLAY Mode.
This mode is intended for - CD PLAY Test - DPL Test
Various other Tests
Y
N

SVC stands for Service Test program

yy stands for software version of the µProcessor on Front Board (counted from 01 upwards)

xxxxxx stands for model number *

* Not all model number are included in the software.

LEVEL	Display shows	ACTION
1	TAPE	Select Tape 1 as sound source.
2	COIL	Solenoids of both decks activated for 2 sec. and then deactivated for 3 sec.
3	FAST 2	Fast Play mode for Deck 2 (High speed)
4	FAST 1	Fast Play mode for Deck 1 (High speed)
		To Leave Tape test press: |◀◀ at level 1 or ▶▶| at level 4.

For CD, PLAY Test is intended to be used for continuously playing a disc in order to detect intermittent or not reproducible failures. In case of failures, error codes according table 2 (page 3-4) will be displayed.

For DPL Test see Various other Tests

PRESET	Europe "EUR"	East Europe "EAS"	USA "USA"	Oversea "OSE"	Korea "KOR"	Japan "JAP"	East Eur. 2-band "EAS"
1	87.5MHz	65.81MHz	87.5MHz	87.5MHz	87.5MHz	76MHz	65.81MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz	CH3 107.75MHz	108MHz
3	531kHz	74MHz	530kHz	531/530kHz	531kHz	90MHz	74MHz
4	1602kHz	87.5MHz	1700kHz	1602/1700kHz	1602kHz	CH1 95.75MHz	87.5MHz
5	558kHz	531kHz	560kHz	558/560kHz	558kHz	CH2 101.75MHz	531kHz
6	1494kHz	1602kHz	1500kHz	1494/1500kHz	1494kHz	531kHz	1602kHz
7	153kHz	558kHz	98MHz	87.5/98MHz	87.5MHz	1602kHz	558kHz
8	279kHz	1494kHz	87.5MHz	87.5MHz	87.5MHz	558kHz	1494kHz
9	198kHz	153kHz	87.5MHz	87.5MHz	87.5MHz	1494kHz	98MHz
10	98MHz	279kHz	87.5MHz	87.5MHz	98MHz	80MHz	70.01MHz
11	87.5MHz	198kHz	87.5MHz	98/87.5MHz	98MHz	76MHz	65.81MHz

Table 1

East Europe TUNER IF offset correction

1) Input a reference frequency 87.5MHz from the generator.

2) Proceed to the Tuner Test Mode (Press PROGRAM button)

3) The set will self-calibrate automatically and display "OFS-xx" when calibration is successful, otherwise it will display "00E".

xx : offset value between -3 to +3

Note: This has to be done whenever the Eeprom, Microprocessor or the components in the oscillator circuitry are replaced.

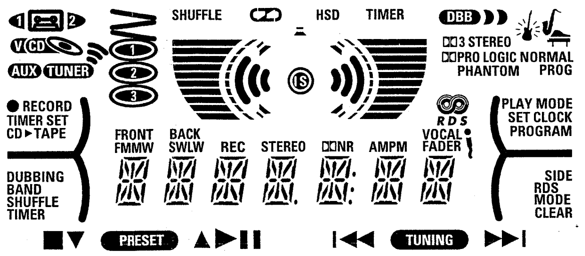

SHUFFLE
HSD
TIMER
DBB
STEREO
PRO LOGIC NORMAL
PHANTOM PROG
CD
AUX
TUNER
1
2
3
RECORD
TIMER SET
CD▸TAPE
PLAY MODE
SET CLOCK
PROGRAM
RDS
FRONT FMMW
BACK SWLW
REC
STEREO
NR
AMPM
VOCAL FADER
DUBBING
BAND
SHUFFLE
TIMER
SIDE
RDS
MODE
CLEAR
PRESET
TUNING

Figure 1

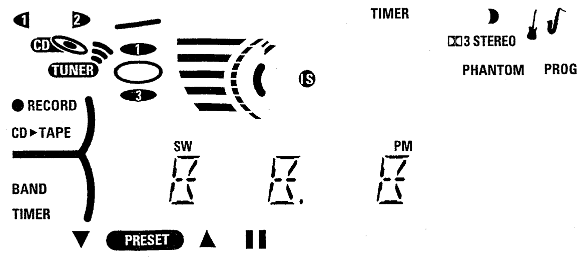

TIMER
STEREO
PHANTOM
PROG
CD
TUNER
1
3
RECORD
CD▸TAPE
BAND
TIMER
SW
PM
PRESET

Figure 2

TEST	Activated with	ACTION
EEPROM TEST	Optimal	A test pattern will be sent to the EEPROM. "PASS" is displayed if the uProcessor read back the test pattern correctly, otherwise "ERR" will be displayed.
EEPROM FORMAT	Classic	Load default data. Display shows "NEW" for 1 second. *Caution!* ***All presets from the customer will be lost!!***
KEY TEST	Aux / Video-DVD	Key numbers according table 3 are shown on the display. (see Chapter 3-4)
FAST CLOCK TEST	Dynamic Bass Boost (DBB)	The clock is switched to fast mode. "FAST" is displayed for 2 sec. Press DBB again to reset the clock to normal. "NORMAL" displayed for 2 sec.
DETECTION TEST	C1	This test is intended to check on the sensor near to the Volume knob. Display shows "OBJ nn" nn < 185 = no object detected nn > 185 = object detected
HVC TEST	B2	This test is intended to check on the hydralic movement of the Volume knob. level 1: Knob moves out & DBB Led turns on. level 2: Knob moves in & DBB Led turns off. level 3: Exit test, ● Record & ■ flag turns on.
DPL TEST (only possible in Service Play mode)	Dolby Pro-logic	The set enters into Pro-logic install mode. The noise-source switches between Left, Center, Right and Rear speakers. Pro-logic settings cannot be install in this test.
LEAVE SERVICE TESTPROGRAM	Disconnect mains cord	

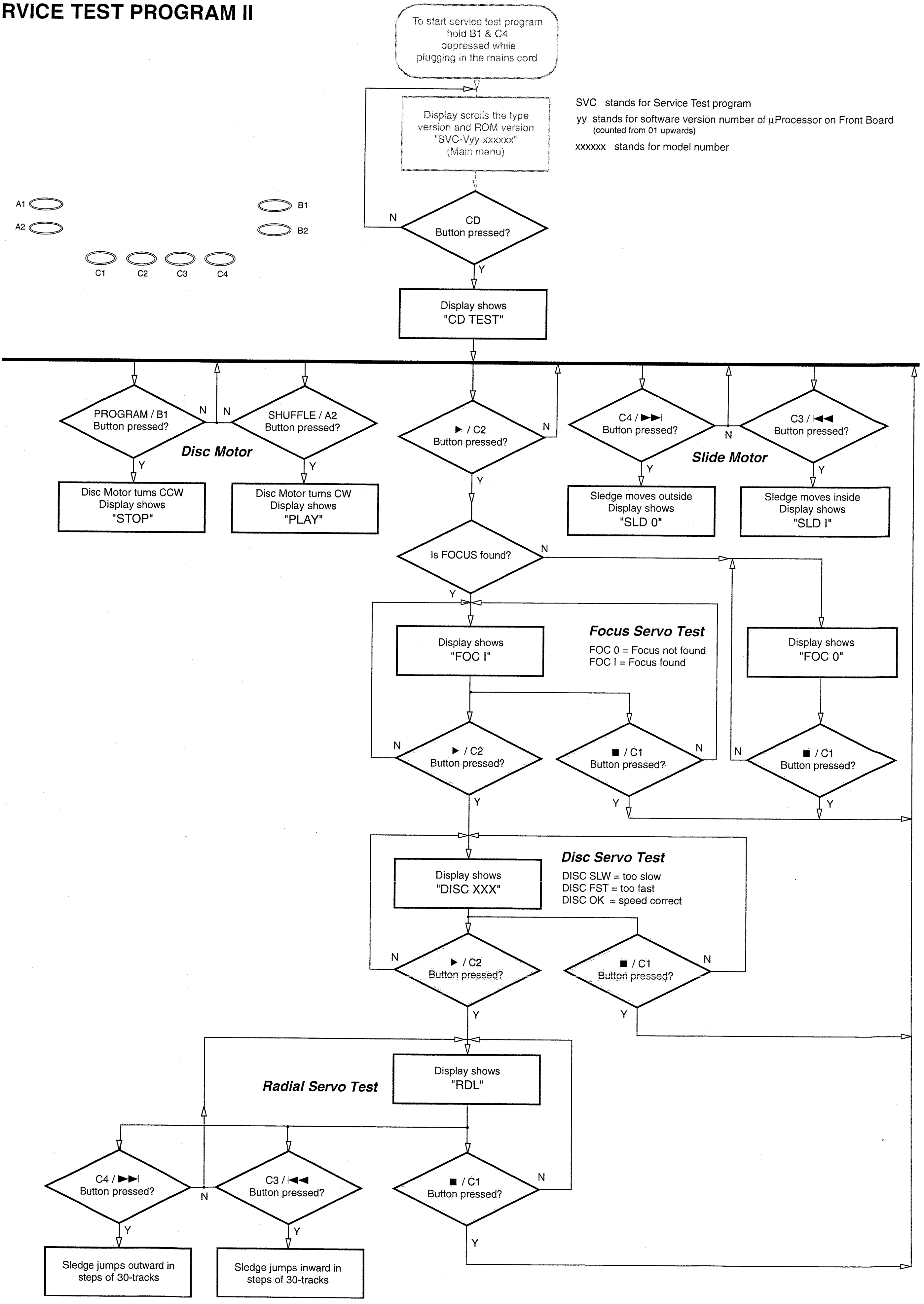
CD Error code	Error Description
E1002	Focus Error Triggered when the focus could not be found within a certain time when starting up the CD or when the focus is lost for a certain time during play.
E1007	Subcode Error (no subcode within time) Triggered when a new subcode was missing for a certain time during play.
E1008	TOC error, out of lead-in area when reading TOC Triggered when during reading the TOC the lead-in (track no. 0) is left. This can be caused by a misaligned inner-switch or by a disc with a mispositioned lead-in.
E1010	Radial Error Triggered when the radial servo is not on track for a certain time during play.
E1011	Sledge Error Generated when the inner-switch did not open within a certain time when the pick-up is moved from the inner position. Inner-switch or sledge motor problem.
E1012	Fatal Sledge Error Generated when the inner-switch did not close within a certain time when the pick-up is moved inside. Inner-switch or sledge motor problem.
E1013	Turntable Motor Error Generated when the CD did not reached 75% of speed during startup within a certain time. Discmotor problem.
E1014	Jump-offtrack error (too less grooves within time) Triggered in normal play when the jump destination could not be found within a certain time.
E1020	PLL Error The Phase Lock Loop could not lock within a certain time.
E1070	Carousel CDM-position switch not open within time.
E1071	Carousel position not reached within time.
E1072	Error tray open
E1076	Error disc change
E1077	Error pickup switch close
E1078	Error pickup switch open
E1079	Error tray block

Table 2

Keys activated	Display shows	Keys activated	Display shows	Keys activated	Display shows
Disc 1	01	Incredible Surround	21	Clock/Timer	14
Disc 2	02	Dynamic Bass Boost	22	Demo	15
Disc 3	03	A1	06	CD	23
Open/Close	04	A2	07	Tuner	24
Standby-On	05	C1	08	Tape 1 - 2	25
Optimal	19	C2	09	Aux / Video - DVD	26
Rock	17	C3	10	Dolby Pro-Logic	27
Classic	16	C4	11	Dolby	28
Jazz	18	B1	12		
POP	20	B2	13	Any Remote control button	RC

Table 3

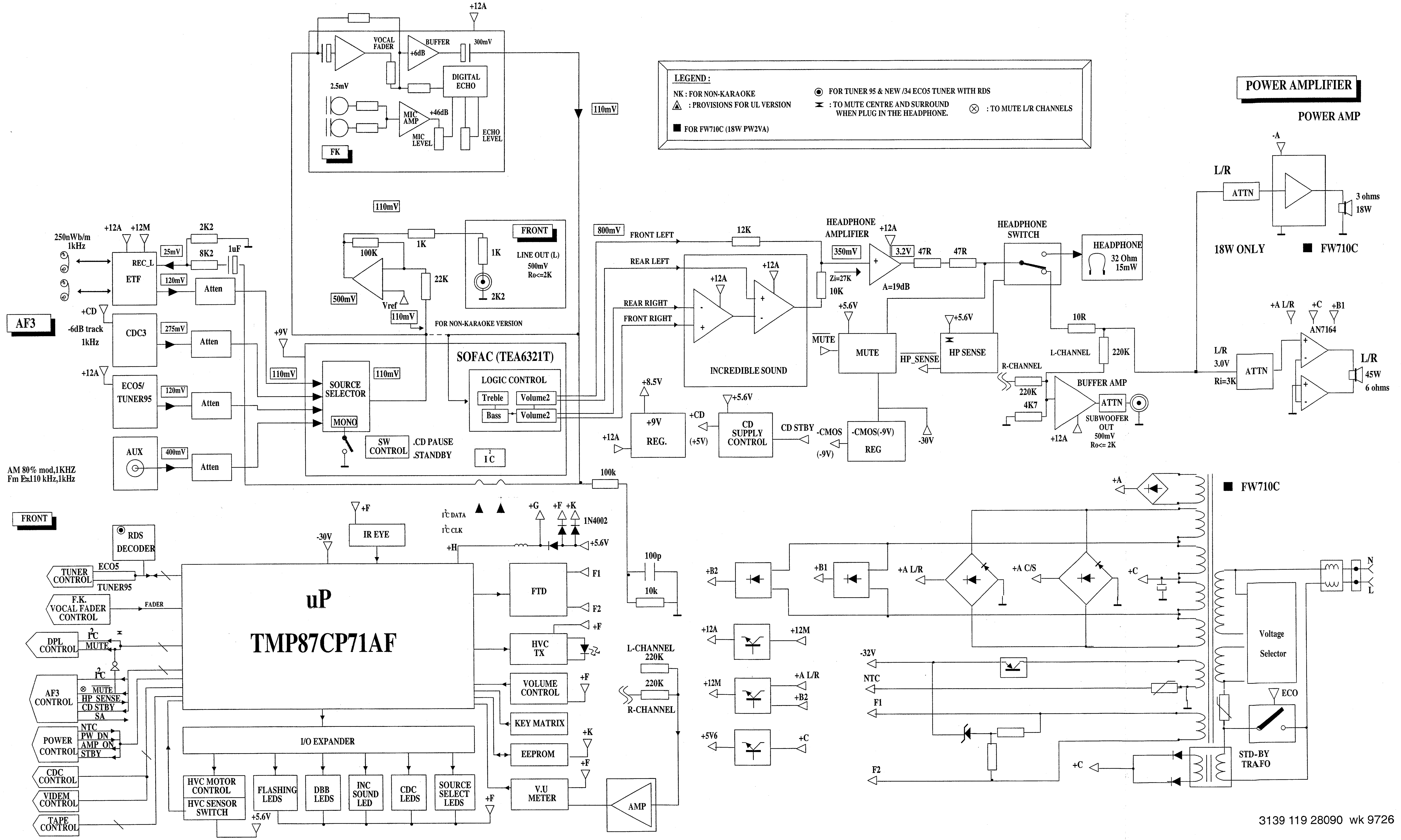
SERVICE TEST PROGRAM II



To start service test program hold B1 & C4 depressed while plugging in the mains cord
Display scrolls the type version and ROM version "SVC-Vyy-xxxxxx" (Main menu)
A1
A2
B1
B2
C1
C2
C3
C4
N
CD Button pressed?
Y
Display shows "CD TEST"
PROGRAM / B1 Button pressed?
N
Y
Disc Motor turns CCW Display shows "STOP"
Disc Motor
SHUFFLE / A2 Button pressed?
N
Y
Disc Motor turns CW Display shows "PLAY"
► / C2 Button pressed?
N
Y
C4 / ►►| Button pressed?
N
Y
Sledge moves outside Display shows "SLD 0"
Slide Motor
C3 / |◄◄ Button pressed?
Y
Sledge moves inside Display shows "SLD I"
Is FOCUS found?
N
Y
Display shows "FOC I"
Focus Servo Test
FOC 0 = Focus not found
FOC I = Focus found
Display shows "FOC 0"
N
► / C2 Button pressed?
Y
■ / C1 Button pressed?
N
Y
N
■ / C1 Button pressed?
Y
Display shows "DISC XXX"
Disc Servo Test
DISC SLW = too slow
DISC FST = too fast
DISC OK = speed correct
N
► / C2 Button pressed?
Y
■ / C1 Button pressed?
N
Y
Display shows "RDL"
Radial Servo Test
C4 / ►►| Button pressed?
Y
Sledge jumps outward in steps of 30-tracks
N
C3 / |◄◄ Button pressed?
Y
Sledge jumps inward in steps of 30-tracks
■ / C1 Button pressed?
N
Y

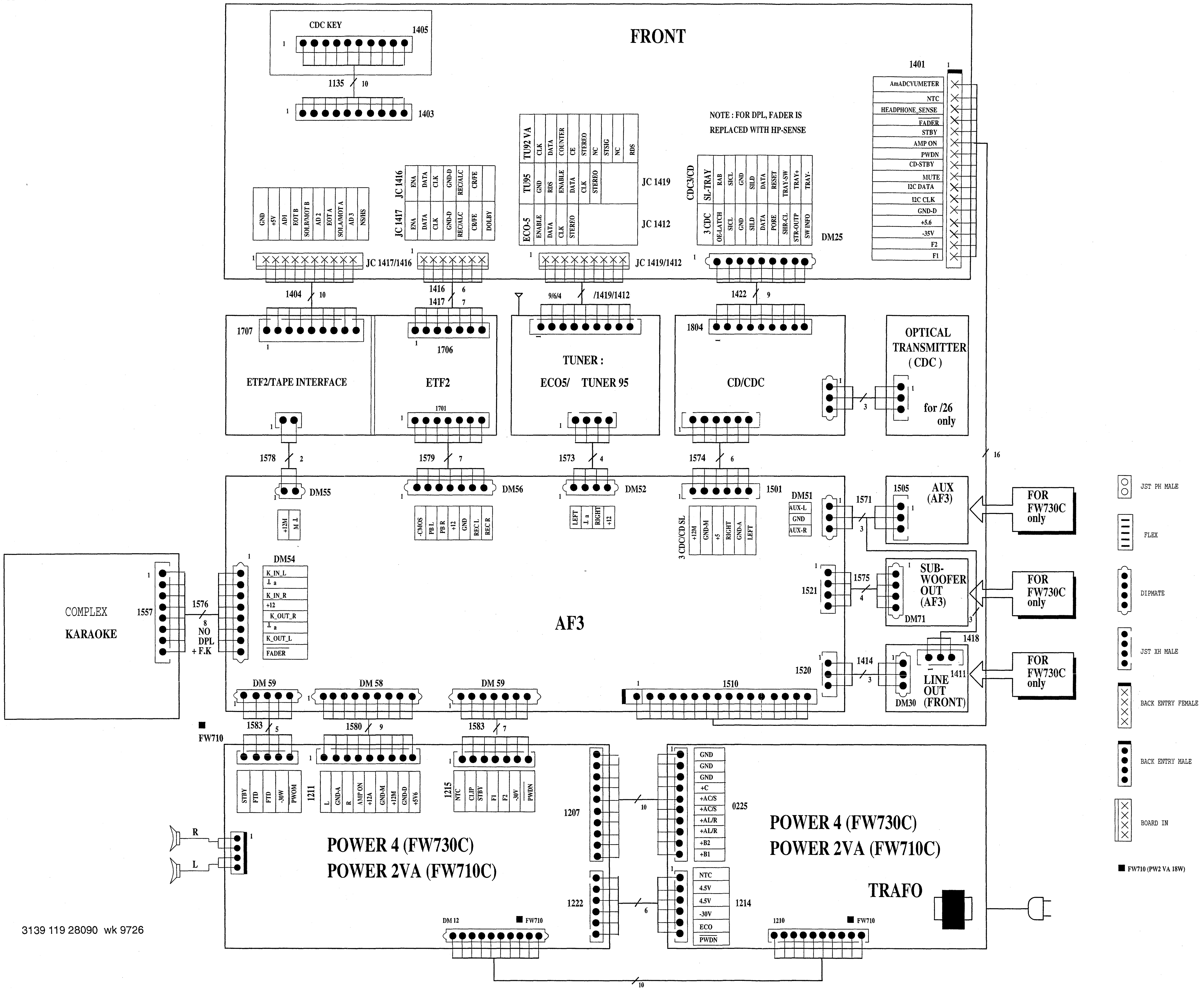
SVC stands for Service Test program
yy stands for software version number of µProcessor on Front Board (counted from 01 upwards)
xxxxxx stands for model number

SET BLOCK DIAGRAM


LEGEND :
NK : FOR NON-KARAOKE
▲ : PROVISIONS FOR UL VERSION
■ FOR FW710C (18W PW2VA)
◉ FOR TUNER 95 & NEW /34 ECO5 TUNER WITH RDS
⧗ : TO MUTE CENTRE AND SURROUND WHEN PLUG IN THE HEADPHONE.
⊗ : TO MUTE L/R CHANNELS
+12A
VOCAL FADER
BUFFER
+6dB
300mV
DIGITAL ECHO
2.5mV
MIC AMP
+46dB
MIC LEVEL
ECHO LEVEL
FK
110mV
100K
1K
22K
500mV
Vref
FRONT
1K
LINE OUT (L)
500mV
Ro<=2K
2K2
FOR NON-KARAOKE VERSION
250nWb/m
1kHz
+12A +12M
2K2
8K2
1uF
25mV
REC_L
ETF
120mV
Atten
AF3
+CD
-6dB track
1kHz
CDC3
275mV
+12A
ECO5/
TUNER95
120mV
AUX
400mV
AM 80% mod,1KHZ
Fm Δ=110 kHz,1kHz
+9V
110mV
SOURCE SELECTOR
MONO
SW CONTROL
.CD PAUSE
.STANDBY
SOFAC (TEA6321T)
LOGIC CONTROL
Treble
Volume2
Bass
Volume2
I²C
800mV
FRONT LEFT
REAR LEFT
REAR RIGHT
FRONT RIGHT
12K
INCREDIBLE SOUND
+12A
+8.5V
+9V REG.
+CD
(+5V)
+5.6V
CD SUPPLY CONTROL
CD STBY
-CMOS
(-9V)
-CMOS(-9V) REG
-30V
HEADPHONE AMPLIFIER
350mV
3.2V
47R
47R
Zi=27K
10K
A=19dB
+5.6V
MUTE
HP_SENSE
HP SENSE
HEADPHONE SWITCH
HEADPHONE
32 Ohm
15mW
10R
L-CHANNEL
220K
R-CHANNEL
220K
4K7
BUFFER AMP
ATTN
SUBWOOFER OUT
500mV
Ro<= 2K
POWER AMPLIFIER
POWER AMP
-A
L/R
ATTN
3 ohms
18W
18W ONLY
■ FW710C
+A L/R
+C
+B1
AN7164
L/R
3.0V
Ri=3K
45W
6 ohms
100k
100p
10k
FRONT
RDS DECODER
TUNER CONTROL
ECO5
TUNER95
F.K. VOCAL FADER CONTROL
FADER
DPL CONTROL
I²C
MUTE
AF3 CONTROL
MUTE
HP_SENSE
CD STBY
SA
POWER CONTROL
NTC
PW_DN
AMP_ON
STBY
CDC CONTROL
VIDEM CONTROL
TAPE CONTROL
-30V
+F
IR EYE
I²C DATA
I²C CLK
+H
+G
+F +K
1N4002
+5.6V
uP
TMP87CP71AF
FTD
F1
F2
HVC TX
+F
VOLUME CONTROL
KEY MATRIX
EEPROM
+K
V.U METER
I/O EXPANDER
HVC MOTOR CONTROL
HVC SENSOR SWITCH
+5.6V
FLASHING LEDS
DBB LEDS
INC SOUND LED
CDC LEDS
SOURCE SELECT LEDS
L-CHANNEL
220K
R-CHANNEL
AMP
+A
■ FW710C
+B2
+B1
+A L/R
+A C/S
+C
+12A
+12M
+12M
+A L/R
+B2
+5V6
+C
-32V
NTC
F1
F2
+C
Voltage Selector
ECO
STD-BY TRAFO
N
L

3139 119 28090 wk 9726

SET WIRING DIAGRAM


FRONT
CDC KEY
1405
1135
10
1403
TU92 VA
CLK
DATA
COUNTER
CE
STEREO
NC
STSIG
NC
RDS
TU95
GND
RDS
ENABLE
DATA
CLK
STEREO
ECO-5
ENABLE
DATA
CLK
STEREO
JC 1419
JC 1412
NOTE : FOR DPL, FADER IS REPLACED WITH HP-SENSE
CDC3/CD
SL-TRAY
RAB
SICL
GND
SILD
DATA
RESET
TRAY-SW
TRAY+
TRAY-
3 CDC
OE-LATCH
SICL
GND
SILD
DATA
PORE
SHR-CL
STR-OUTP
SW INFO
DM25
1401
AmADCVUMETER
NTC
HEADPHONE_SENSE
FADER
STBY
AMP ON
PWDN
CD-STBY
MUTE
I2C DATA
I2C CLK
GND-D
+5.6
-35V
F2
F1
JC 1416
ENA
DATA
CLK
GND-D
REC/ALC
CR/FE
JC 1417
ENA
DATA
CLK
GND-D
REC/ALC
CR/FE
DOLBY
GND
+5V
AD1
EOT B
SOLB/MOT B
AD 2
EOT A
SOLA/MOT A
AD 3
NS/HS
JC 1417/1416
JC 1419/1412
1404
10
1416
6
1417
7
9/6/4
/1419/1412
1422
9
1707
ETF2/TAPE INTERFACE
1706
ETF2
1701
TUNER :
ECO5/ TUNER 95
1804
CD/CDC
OPTICAL TRANSMITTER (CDC)
for /26 only
3
16
1578
2
1579
7
1573
4
1574
6
DM55
DM56
DM52
1501
+12M
M_L
-CMOS
PB L
PB R
+12
GND
REC L
REC R
LEFT
RIGHT
+12
3 CDC/CD SL
+12M
GND-M
+5
RIGHT
GND-A
LEFT
DM51
AUX-L
GND
AUX-R
1571
3
1505
AUX (AF3)
FOR FW730C only
COMPLEX KARAOKE
1557
1576
8
NO DPL
+ F.K
DM54
K_IN_L
K_IN_R
+12
K_OUT_R
K_OUT_L
FADER
AF3
1521
1575
4
SUB-WOOFER OUT (AF3)
DM71
FOR FW730C only
3
1418
1520
1414
3
1411
LINE OUT (FRONT)
DM30
FOR FW730C only
DM 59
DM 58
DM 59
1510
1583
5
1580
9
1583
7
FW710
STBY
FTD
FTD
-30W
PWOM
1211
L
GND-A
R
AMP ON
+12A
GND-M
+12M
GND-D
+5V6
1215
NTC
CLIP
STBY
F1
F2
-30V
PWDN
1207
10
GND
GND
GND
+C
+AC/S
+AC/S
+AL/R
+AL/R
+B2
+B1
0225
R
L
POWER 4 (FW730C)
POWER 2VA (FW710C)
POWER 4 (FW730C)
POWER 2VA (FW710C)
1222
6
NTC
4.5V
4.5V
-30V
ECO
PWDN
1214
TRAFO
DM 12
FW710
1210
FW710
10
JST PH MALE
FLEX
DIPMATE
JST XH MALE
BACK ENTRY FEMALE
BACK ENTRY MALE
BOARD IN
■ FW710 (PW2 VA 18W)

3139 119 28090 wk 9726

]

FRONT BOARD

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Chip component layout... 6A-3
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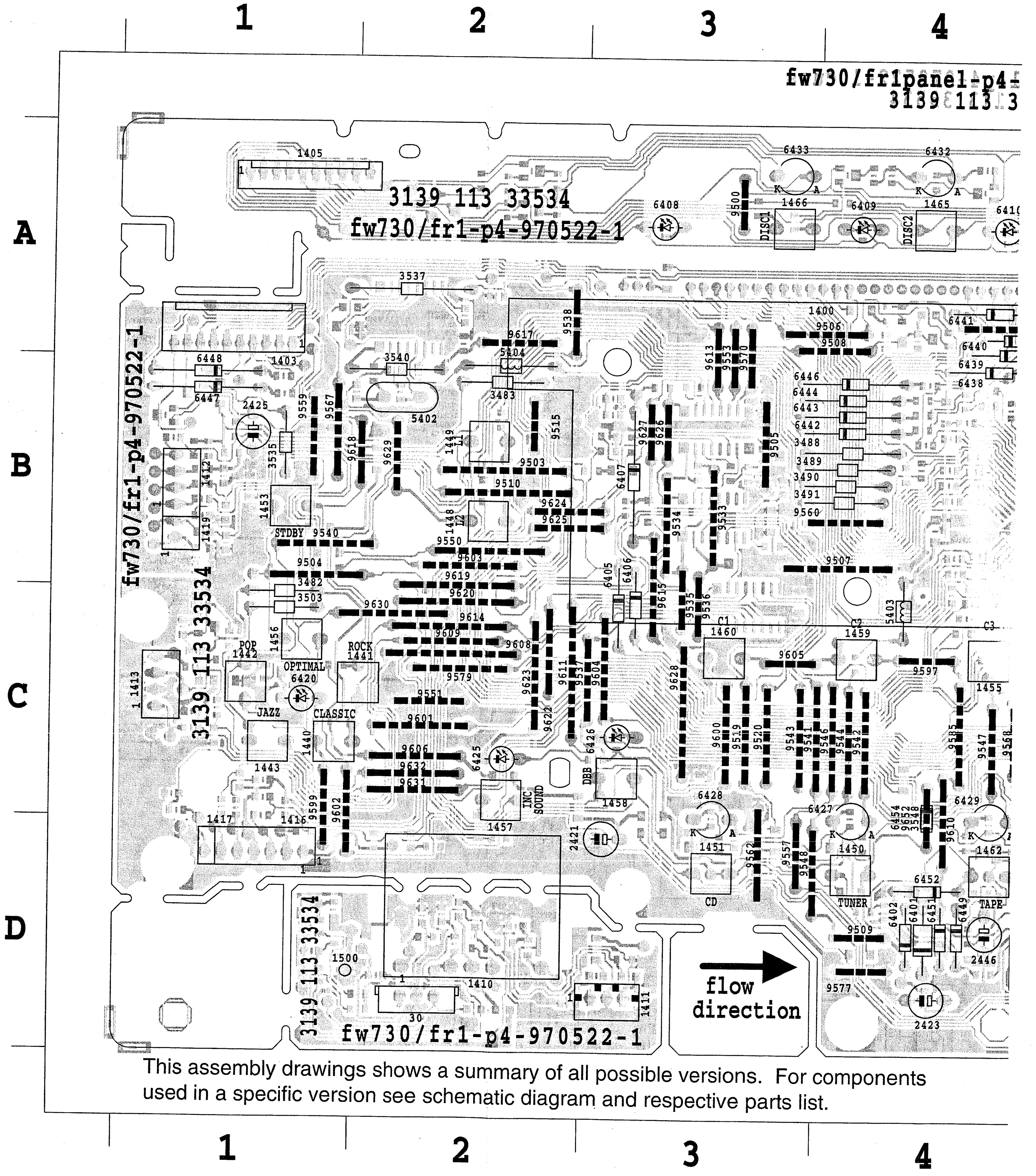
Electrical parts list.. 6A-4

COMPONENT LAYOUT DIAGRAM

1405 A 1	1444 D 6	1457 C 2	2420 D 6	3503 C 1	5403 C 4	6409 A 4	6436 A 5	6450 B 5	9506 A 4	9520 C
1410 D 2	1445 B 7	1458 C 3	2421 D 3	3518 D 6	5404 B 2	6410 A 4	6437 A 5	6451 D 4	9507 B 4	9522 B
1411 D 3	1446 B 6	1459 C 4	2423 D 4	3520 D 5	5405 B 5	6411 A 5	6438 B 4	6452 D 4	9508 A 4	9524 C
1412 B 1	1447 B 6	1460 C 3	2425 B 1	3522 D 5	5406 B 5	6412 C 6	6439 A 4	6453 D 6	9509 D 4	9526 C
1413 C 1	1448 B 2	1461 D 5	2446 D 4	3531 B 7	5407 B 5	6420 C 1	6440 A 4	6454 C 4	9510 B 2	9527 C
1416 D 1	1449 B 2	1462 D 4	2477 D 6	3532 B 7	5408 B 5	6421 A 6	6441 A 4	7435 A 6	9511 D 6	9528 C
1417 D 1	1450 D 4	1463 D 6	3422 C 5	3535 B 1	6400 D 6	6422 A 5	6442 B 4	7436 D 5	9512 A 7	9530 C

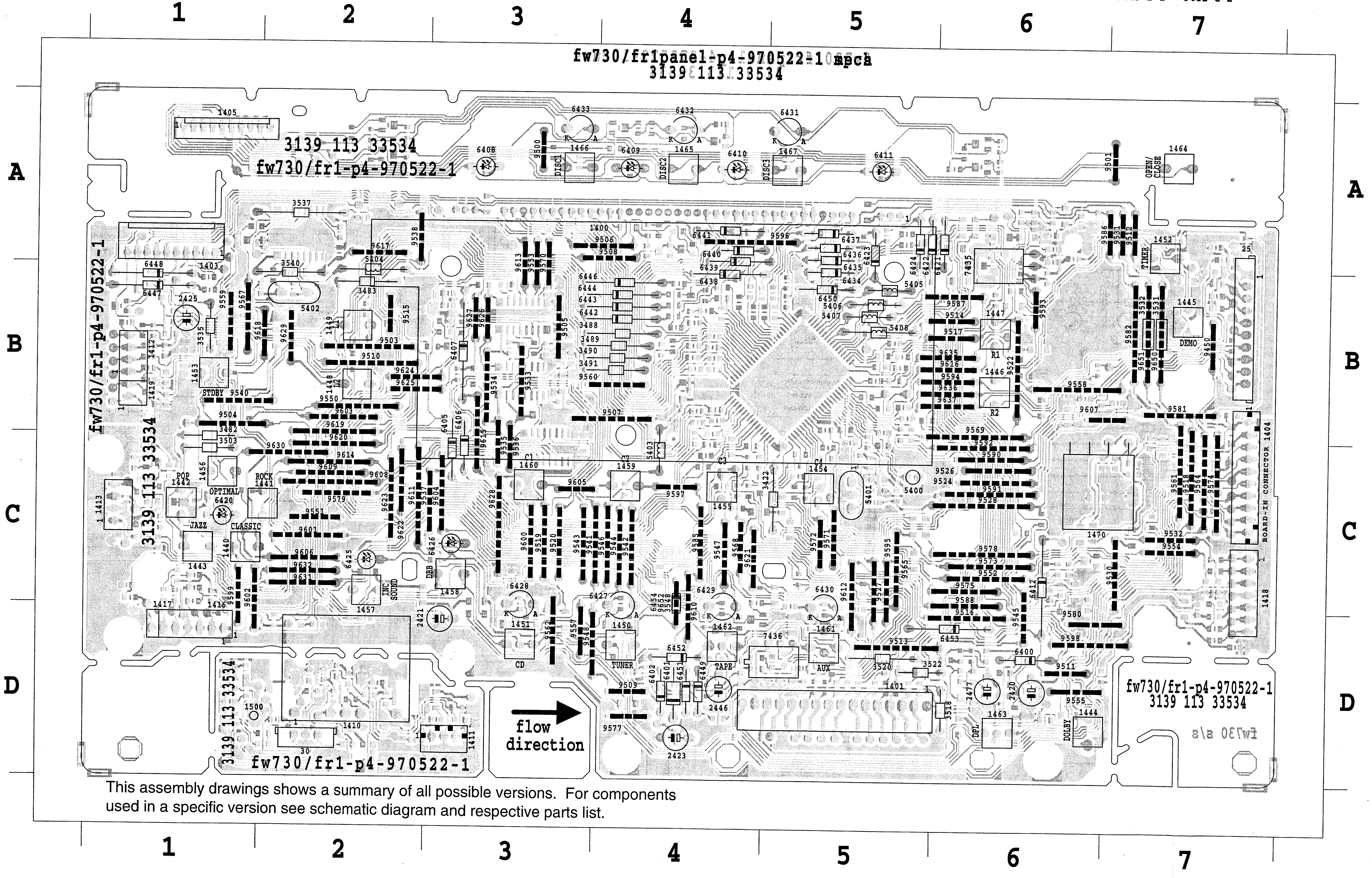


1
2
3
4
A
B
C
D
fw730/fr1panel-p4-
3139 113 3
3139 113 33534
fw730/fr1-p4-970522-1
DISC1
DISC2
STDBY
POP
ROCK
OPTIMAL
JAZZ
CLASSIC
INC SOUND
DBB
CD
TUNER
TAPE
flow direction

This assembly drawings shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

COMPONENT LAYOUT DIAGRAM

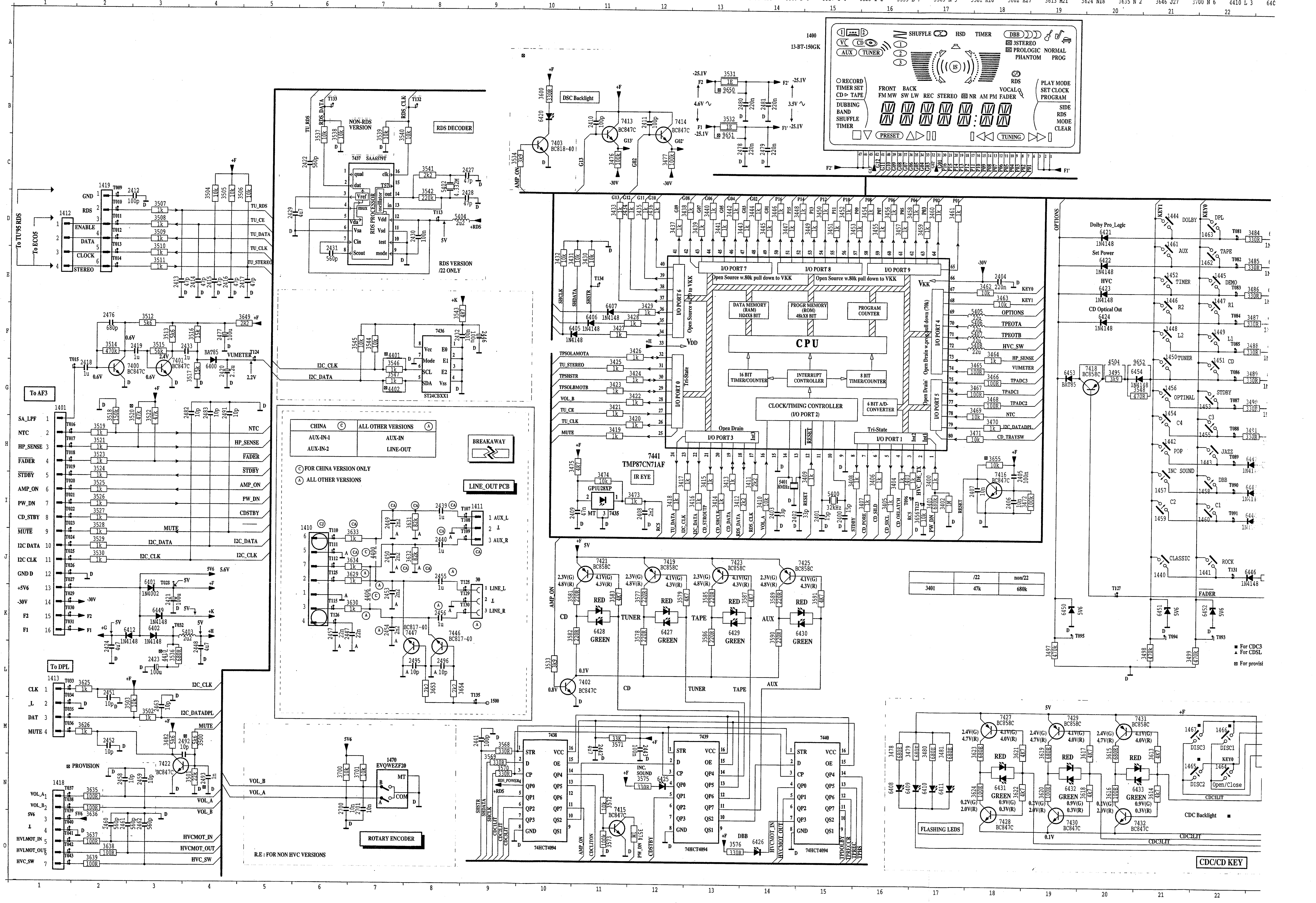
1405	A	1
1410	D	2
1411	D	3
1412	B	1
1413	C	1
1416	D	1
1417	D	1
1444	D	6
1445	B	7
1446	B	6
1447	B	6
1448	B	2
1449	B	2
1450	D	4
1457	C	2
1458	C	3
1459	C	4
1460	C	3
1461	D	5
1462	D	4
1463	D	6
2420	D	6
2421	D	3
2423	D	4
2425	B	1
2446	D	4
2477	D	6
3422	C	5
3503	C	1
3518	D	6
3520	D	5
3522	D	5
3531	B	7
3532	B	7
3535	B	1
5403	C	4
5404	B	2
5405	B	5
5406	B	5
5407	B	5
5408	B	5
6400	D	6
6409	A	4
6410	A	4
6411	A	5
6412	C	6
6420	C	1
6421	A	6
6422	A	5
6436	A	5
6437	A	5
6438	B	4
6439	A	4
6440	A	4
6441	A	4
6442	B	4
6450	B	5
6451	D	4
6452	D	4
6453	D	6
6454	C	4
7435	A	6
7436	D	5
9506	A	4
9507	B	4
9508	A	4
9509	D	4
9510	B	2
9511	D	6
9512	A	7
9520	C	3
9522	B	6
9524	C	6
9526	C	6
9527	C	5
9528	C	6
9530	C	7
9537	C	3
9538	A	2
9540	B	1
9541	C	4
9542	C	4
9543	C	3
9544	C	4
9552	C	6
9553	A	3
9554	C	7
9555	D	6
9557	D	3
9558	B	6
9559	B	1
9568	C	4
9569	B	6
9570	A	3
9571	C	5
9572	C	5
9573	C	6
9574	C	7
9585	C	4
9586	A	7
9587	B	6
9588	C	6
9590	C	6
9591	C	6
9592	C	6
9599	C	1
9600	C	3
9601	C	2
9602	C	1
9603	B	2
9604	C	3
9605	C	3
9613	A	3
9614	C	2
9615	B	3
9616	B	6
9617	A	2
9618	B	2
9619	B	2
9626	B	3
9627	B	3
9628	C	3
9629	B	2
9630	C	2
9631	C	2
9632	C	2
9577	D	4
9607	B	6


1
2
3
4
5
6
7
A
B
C
D
fw730/fr1panel-p4-970522-1 mpch
3139 113 33534
3139 113 33534
fw730/fr1-p4-970522-1
DISC1
DISC2
DISC3
OPEN/CLOSE
TIMER
DEMO
STDBY
POP
ROCK
OPTIMAL
JAZZ
CLASSIC
INC SOUND
DBB
CD
TUNER
TAPE
AUX
DEL
DOLBY
R1
R2
C1
C2
C3
C4
BOARD-IN CONNECTOR 1404
flow direction
fw730/fr1-p4-970522-1
3139 113 33534
fw730 a/s

This assembly drawings shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

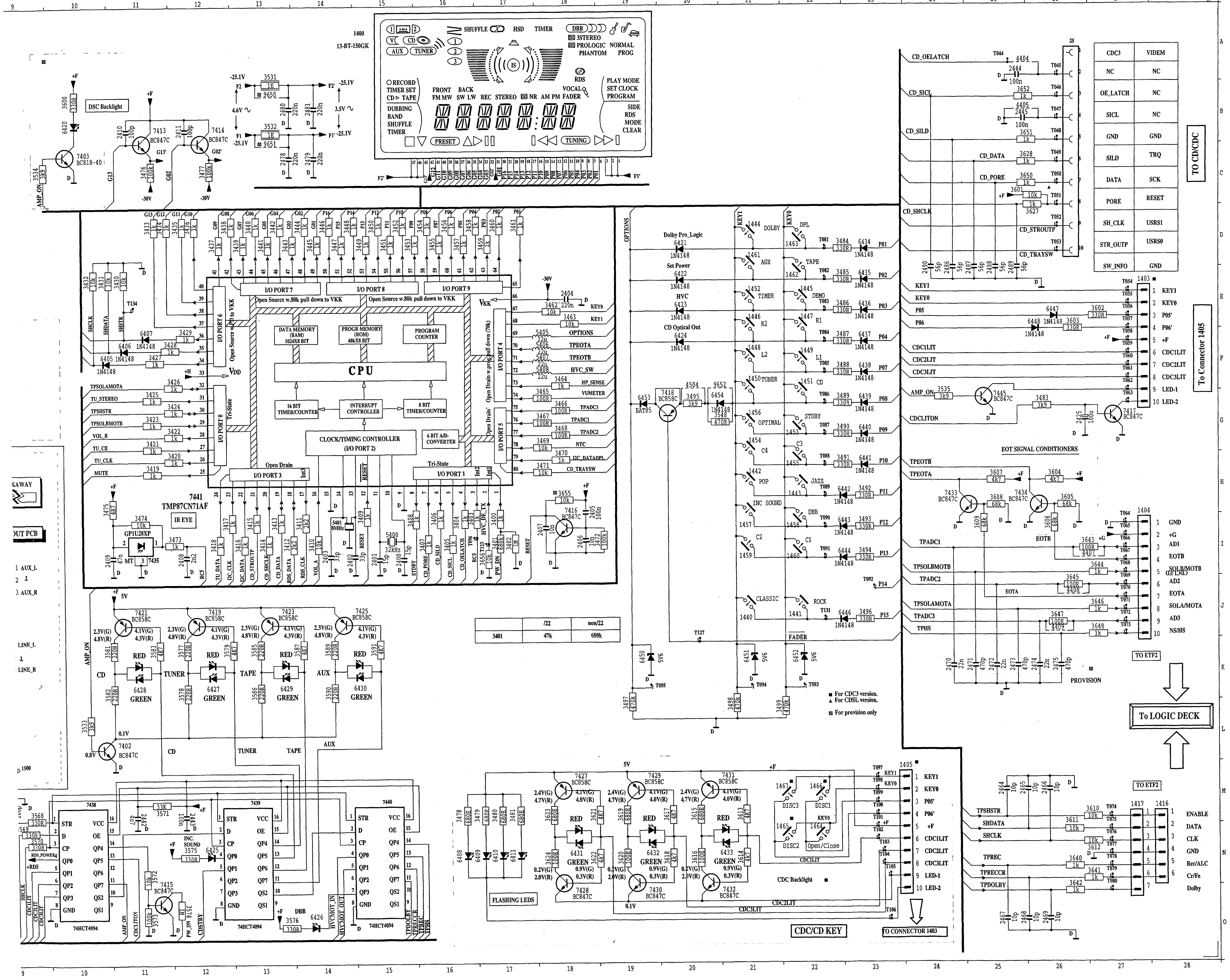
FRONT CIRCUIT

1400	A15
1401	G 1
1403	E27
1404	H28
1405	M23
1410	I 6
1411	I 9
1412	D 1
1413	L 1
1416	M28
1417	M27
1418	N 1
1419	C 2
1440	J21
1441	J22
1442	H21
1443	H22
1444	D21
1445	E22
1446	E21
1447	E22
1448	F21
1449	F22
1450	F21
1451	F22
1452	E21
1453	G22
1454	G21
1455	H22
1456	G21
1457	I21
1458	I22
1459	I21
1460	I22
1461	D21
1462	E22
1463	D22
1464	N22
1465	N22
1466	M22
1467	M22
1470	N 7
1500	M 9
2400	I15
2401	I15
2402	I14
2403	I14
2404	E18
2405	H18
2406	I18
2407	I18
2408	I12
2409	I11
2410	B11
2411	B12
2412	D 3
2413	E 3
2414	E 4
2415	E 4
2416	E 4
2417	E 5
2418	F 2
2419	F 3
2420	G 4
2421	K 3
2422	C 6
2423	L 3
2424	L 2
2425	G26
2427	C 9
2428	D 9
2429	D 5
2430	D 8
2431	E 6
2432	F 8
2433	F 4
2439	I 8
2440	J 8
2441	M 9
2442	M11
2443	M12
2444	A25
2445	B25
2446	F 9
2447	K 6
2448	L 4
2449	I 7
2450	J 7
2451	L 2
2452	M 2
2453	K 7
2454	K 7
2455	J 8
2456	K 8
2457	K 6
2458	N 2
2459	N 3
2460	O 2
2461	O 2
2462	O 3
2463	M 3
2464	M25
2465	M25
2466	M26
2467	O25
2468	O25
2469	O26
2470	K24
2471	K25
2472	K25
2473	K25
2474	K26
2475	K26
2476	F 2
2477	F 4
2478	C13
2479	C14
2480	B13
2481	B14
2482	G 3
2483	G 4
2486	E24
2487	E25
2488	E25
2489	E25
2490	E24
2491	G 4
2492	M 4
2493	N 4
2495	L 8
2496	L 8
25	A26
2700	N 6
2701	N 7
30	J 9
3400	I17
3401	I17
3402	I17
3403	I16
3404	I16
3405	I16
3406	I16
3407	I16
3408	I15
3409	H15
3410	I14
3411	I14
3412	I13
3413	I13
3414	I13
3415	I13
3416	I13
3417	I12
3418	I12
3419	H11
3420	H12
3421	G11
3422	G12
3423	G11
3424	G12
3425	G11
3426	F12
3427	F11
3428	F12
3429	F12
3430	E11
3431	E10
3432	E10
3433	D11
3434	D11
3435	D12
3436	D12
3437	D12
3438	D12
3439	D13
3440	D13
3441	D13
3442	D13
3443	D13
3444	D14
3445	D14
3446	D14
3447	D14
3448	D14
3449	D15
3450	D15
3451	D15
3452	D15
3453	D15
3454	D16
3455	D16
3456	D16
3457	D16
3458	D16
3459	D17
3460	D17
3461	D17
3462	E18
3463	E18
3464	F18
3465	G18
3466	G18
3467	G18
3468	G18
3469	G18
3470	H18
3471	H18
3472	I19
3473	I12
3474	I11
3475	H10
3476	C11
3477	C12
3478	M16
3479	M16
3480	M17
3481	M17
3482	M 3
3483	G26
3484	D23
3485	E23
3486	E23
3487	F23
3488	F23
3489	G23
3490	G23
3491	H23
3492	H23
3493	I23
3494	I23
3495	G20
3496	J23
3497	L19
3498	L21
3499	L21
3500	M 4
3501	N 4
3502	M 3
3503	M 3
3504	D 4
3505	D 4
3506	D 4
3507	D 3
3508	D 3
3509	D 3
3510	E 3
3511	E 3
3512	F 3
3513	F 3
3514	F 2
3515	F 3
3516	F 4
3517	G 4
3518	G 2
3519	H 2
3520	G 3
3521	H 2
3522	G 3
3523	H 2
3524	H 2
3525	I 2
3526	I 2
3527	I 2
3528	I 2
3529	J 2
3530	J 2
3531	A13
3532	B13
3533	L10
3534	C 9
3535	G24
3536	L 3
3537	C 6
3538	B 6
3539	B 7
3540	B 7
3541	C 8
3542	D 8
3543	F 8
3544	F 7
3545	F 7
3546	G 7
3547	G 7
3548	G21
3568	M 9
3569	N 9
3570	N 9
3571	M11
3572	N11
3573	O11
3574	O12
3575	N12
3576	O13
3577	K12
3578	K12
3579	K12
3581	K10
3582	K10
3583	K11
3585	K13
3586	K13
3587	K14
3589	K14
3590	K14
3591	K15
3600	B10
3601	C25
3602	E27
3603	E26
3604	H26
3605	H26
3606	I26
3607	H25
3608	H25
3609	I25
3610	M27
3611	M26
3612	N27
3613	M21
3614	N21
3615	M20
3616	N20
3617	M20
3618	N20
3619	M19
3620	N19
3621	M18
3622	N18
3623	M18
3624	N18
3625	L 2
3626	M 2
3627	D26
3628	C26
3629	J 7
3630	K 7
3631	I 8
3632	J 8
3633	J 7
3634	J 7
3635	N 2
3636	O 2
3637	O 2
3638	O 2
3639	O 2
3640	N26
3641	N27
3642	O26
3643	I27
3644	I27
3645	J26
3646	J27
3647	J26
3648	J27
3649	F 5
3650	C26
3651	B26
3652	B25
3653	L 8
3654	L 8
3655	H18
3656	I17
3700	N 6
3701	N 7
4400	J 7
4401	F 7
4402	G 7
4404	A25
4405	B25
4406	K 7
4407	I27
4408	J26
4409	J26
4410	L 3
450	
540	
540	
540	
540	
540	
540	
540	
540	
54C	
54C	
64C	


1400
13-BT-150GK
SHUFFLE
HSD
TIMER
DBB
3STEREO
PROLOGIC
NORMAL
PHANTOM
PROG
AUX
TUNER
CD
RECORD
TIMER SET
CD ▷ TAPE
DUBBING
BAND
SHUFFLE
TIMER
FRONT
BACK
FM MW
SW LW
REC
STEREO
NR
AM PM
FADER
RDS
VOCAL
PLAY MODE
SET CLOCK
PROGRAM
SIDE
RDS
MODE
CLEAR
PRESET
TUNING
DSC Backlight
RDS DECODER
NON-RDS VERSION
7437 SAA6579T
RDS PROCESSOR
RDS VERSION /22 ONLY
To TU'95 RDS
To ECO5
GND
RDS
ENABLE
DATA
CLOCK
STEREO
VUMETER
To AF3
SA_LPF
NTC
HP_SENSE
FADER
STDBY
AMP_ON
PW_DN
CD_STBY
MUTE
I2C DATA
I2C CLK
GND D
+5V6
-30V
F2
F1
To DPL
CLK
DAT
MUTE
PROVISION
VOL_A
VOL_B
5V6
HVLMOT_IN
HVLMOT_OUT
HVC_SW
HVCMOT_IN
HVCMOT_OUT
CHINA
ALL OTHER VERSIONS
AUX-IN-1
AUX-IN-2
AUX-IN
LINE-OUT
FOR CHINA VERSION ONLY
ALL OTHER VERSIONS
BREAKAWAY
LINE_OUT PCB
1 AUX_L
3 AUX_R
1 LINE_L
3 LINE_R
7436
ST24C08XX1
I2C_CLK
I2C_DATA
1470
EVQWEZF20
ROTARY ENCODER
R.E : FOR NON HVC VERSIONS
7441
TMP87CN71AF
CPU
I/O PORT 7
I/O PORT 8
I/O PORT 9
I/O PORT 6
I/O PORT 4
I/O PORT 5
I/O PORT 0
I/O PORT 3
I/O PORT 1
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48kX8 BIT
PROGRAM COUNTER
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
Open Source w.80k pull down to VKK
Open Drain
Tri-State
IR EYE
GP1U28XP
OPTIONS
KEY0
KEY1
TPEOTA
TPEOTB
HVC_SW
HP_SENSE
VUMETER
TPADC3
TPADC1
TPADC2
NTC
I2C_DATADPL
CD_TRAYSW
Dolby Pro_Logic
Set Power
HVC
CD Optical Out
DOLBY
DPL
AUX
TAPE
TIMER
DEMO
R2
R1
L2
L1
TUNER
CD
OPTIMAL
STDBY
C4
C3
POP
JAZZ
INC SOUND
DBB
C2
C1
CLASSIC
ROCK
FADER
For CDC3
For CDSL
For provisi
RED
GREEN
CD
TUNER
TAPE
AUX
74HCT4094
STR
VCC
CP
OE
QP0
QP1
QP2
QP3
QP4
QP5
QP6
QP7
QS1
QS2
GND
INC. SOUND
DBB
FLASHING LEDS
DISC3
DISC1
DISC2
KEY0
Open/Close
CDC Backlight
CDC1LIT
CDC2LIT
CDC3LIT
CDC/CD KEY

3408 I15	3419 H11	3430 E11	3441 D13	3452 D15	3463 E18	3474 I11	3485 E23	3496 J23	3507 D 3	3518 G 2	3529 J 2	3540 B 7	3570 N 9	3582 K10
3409 H15	3420 H12	3431 E10	3442 D13	3453 D15	3464 F18	3475 H10	3486 E23	3497 L19	3508 D 3	3519 H 2	3530 J 2	3541 C 8	3571 M11	3583 K11
3410 I14	3421 G11	3432 E10	3443 D13	3454 D16	3465 G18	3476 C11	3487 F23	3498 L21	3509 D 3	3520 G 3	3531 A13	3542 D 8	3572 N11	3585 K13
3411 I14	3422 G12	3433 D11	3444 D14	3455 D16	3466 G18	3477 C12	3488 F23	3499 L21	3510 E 3	3521 H 2	3532 B13	3543 F 8	3573 O11	3586 K13
3412 I13	3423 G11	3434 D11	3445 D14	3456 D16	3467 G18	3478 M16	3489 G23	3500 M 4	3511 E 3	3522 G 3	3533 L10	3544 F 7	3574 O12	3587 K14
3413 I13	3424 G12	3435 D12	3446 D14	3457 D16	3468 G18	3479 M16	3490 G23	3501 N 4	3512 F 3	3523 H 2	3534 C 9	3545 F 7	3575 N12	3589 K14
3414 I13	3425 G11	3436 D12	3447 D14	3458 D16	3469 G18	3480 M17	3491 H23	3502 M 3	3513 F 3	3524 H 2	3535 G24	3546 G 7	3576 O13	3590 K14
3415 I13	3426 F12	3437 D12	3448 D14	3459 D17	3470 H18	3481 M17	3492 H23	3503 M 3	3514 F 2	3525 I 2	3536 L 3	3547 G 7	3577 K12	3591 K15
3416 I13	3427 F11	3438 D12	3449 D15	3460 D17	3471 H18	3482 M 3	3493 I23	3504 D 4	3515 F 3	3526 I 2	3537 C 6	3548 G21	3578 K12	3600 B10
3417 I12	3428 F12	3439 D13	3450 D15	3461 D17	3472 I19	3483 G26	3494 I23	3505 D 4	3516 F 4	3527 I 2	3538 B 6	3568 M 9	3579 K12	3601 C25
3418 I12	3429 F12	3440 D13	3451 D15	3462 E18	3473 I12	3484 D23	3495 G20	3506 D 4	3517 G 4	3528 I 2	3539 B 7	3569 N 9	3581 K10	3602 E27

3603 E26	3614 N21	3625 L 2	3636 O 2	3647 J26	3701 N 7	4504 F20	6401 J 3	6421 D20	6432 N19	6443 I23	7400 G 2	7421 J11	7434 H26	9650 B13
3604 H26	3615 M20	3626 M 2	3637 O 2	3648 J27	4400 J 7	5400 I15	6402 K 3	6422 E20	6433 N21	6444 I23	7401 G 3	7422 N 3	7435 I11	9651 B13
3605 H26	3616 N20	3627 D26	3638 O 2	3649 F 5	4401 F 7	5401 I14	6405 F10	6423 E20	6434 D23	6446 J23	7402 L11	7423 J14	7436 F 8	9652 F21
3606 I26	3617 M20	3628 C26	3639 O 2	3650 C26	4402 G 7	5402 C 8	6406 F11	6424 F20	6435 E23	6447 E26	7403 C10	7425 J15	7437 C 6	
3607 H25	3618 N20	3629 J 7	3640 N26	3651 B26	4404 A25	5403 K 4	6407 F11	6425 N12	6436 E23	6448 E26	7413 B11	7427 M18	7438 M10	
3608 H25	3619 M19	3630 K 7	3641 N27	3652 B25	4405 B25	5404 D 8	6408 N16	6426 O14	6437 F23	6449 K 3	7414 B12	7428 O18	7439 M13	
3609 I25	3620 N19	3631 I 8	3642 O26	3653 L 8	4406 K 7	5405 F18	6409 N16	6427 K12	6438 F23	6450 K19	7415 N11	7429 M20	7440 M15	
3610 M27	3621 M18	3632 J 8	3643 I27	3654 L 8	4407 I27	5406 F18	6410 N17	6428 K11	6439 G23	6451 K21	7416 H18	7430 O20	7441 H12	
3611 M26	3622 N18	3633 J 7	3644 I27	3655 H18	4408 J26	5407 F18	6411 N17	6429 K13	6440 G23	6452 K22	7417 G27	7431 M21	7445 G25	
3612 N27	3623 M18	3634 J 7	3645 J26	3656 I17	4409 J26	5408 F18	6412 K 3	6430 K15	6441 H23	6453 G19	7418 F20	7432 O21	7446 K 8	
3613 M21	3624 N18	3635 N 2	3646 J27	3700 N 6	4410 L 3	6400 G 4	6420 B10	6431 N18	6442 H23	6454 G20	7419 J12	7433 H24	7447 K 8	



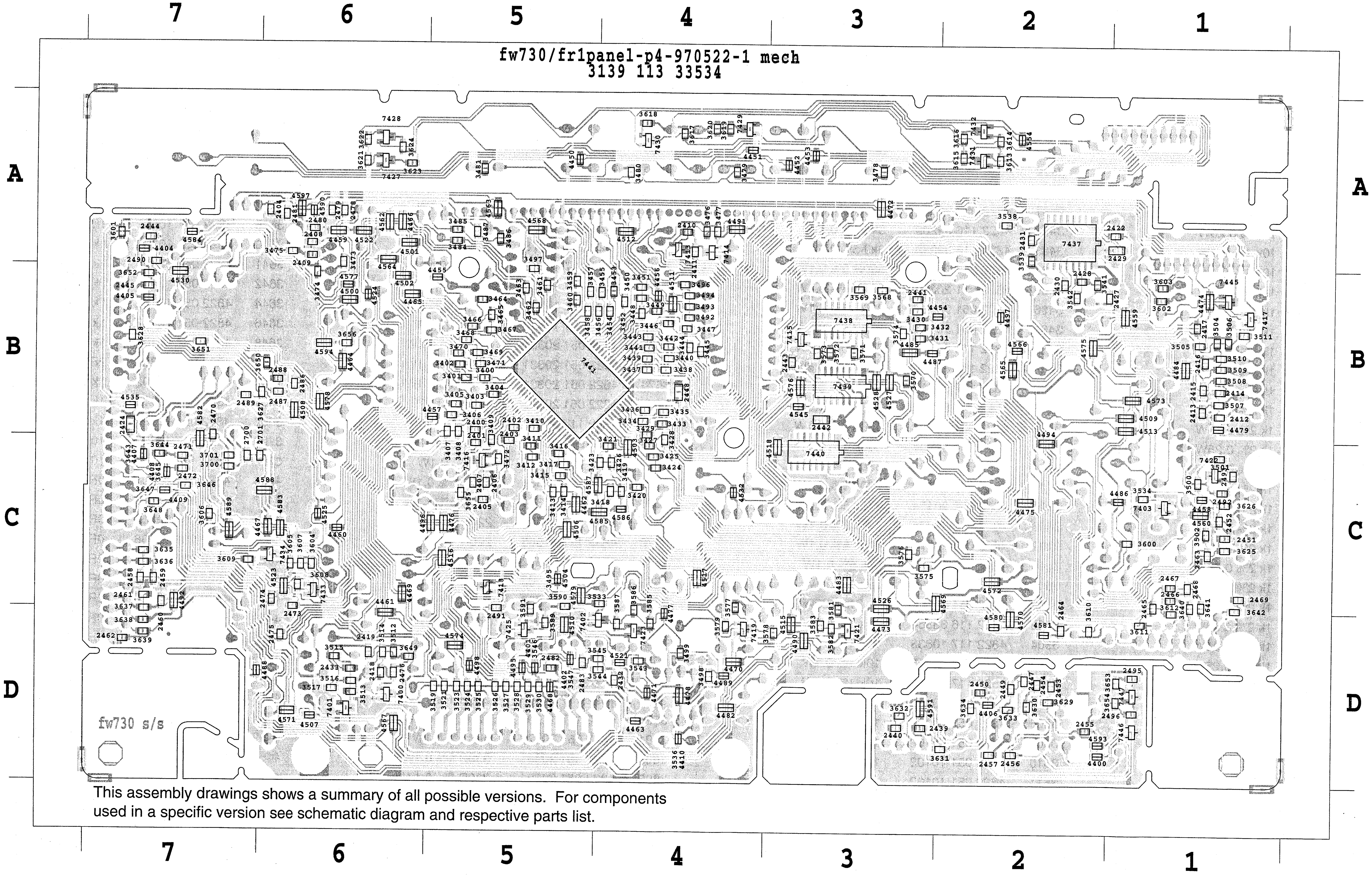
1400
13-BT-150GK
SHUFFLE
HSD
TIMER
DBB
3STEREO
PROLOGIC
NORMAL
PHANTOM
PROG
AUX
TUNER
RECORD
TIMER SET
CD > TAPE
DUBBING
BAND
SHUFFLE
TIMER
FRONT
BACK
FM MW
SW LW
REC
STEREO
NR
AM PM
FADER
RDS
VOCAL
PLAY MODE
SET CLOCK
PROGRAM
SIDE
RDS
MODE
CLEAR
PRESET
TUNING
DSC Backlight
AMP_ON
7441
TMP87CN71AF
IR EYE
CPU
I/O PORT 7
I/O PORT 8
I/O PORT 9
I/O PORT 6
I/O PORT 0
I/O PORT 3
I/O PORT 1
I/O PORT 4
I/O PORT 5
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48KX8 BIT
PROGRAM COUNTER
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
OPTIONS
Dolby Pro_Logic
Set Power
HVC
CD Optical Out
DOLBY
DPL
AUX
TAPE
TIMER
DEMO
R2
R1
L2
L1
TUNER
CD
OPTIMAL
STDBY
C4
C3
POP
JAZZ
INC SOUND
DBB
C2
C1
CLASSIC
ROCK
FADER
CD_OELATCH
CD_SICL
CD_SILD
CD_DATA
CD_PORE
CD_SHCLK
CD_STROUTP
CD_TRAYSW
TO CD/CDC
To Connector 1405
EOT SIGNAL CONDITIONERS
TO ETF2
PROVISION
To LOGIC DECK
CD
TUNER
TAPE
AUX
RED
GREEN
74HCT4094
FLASHING LEDS
CDC Backlight
CDC/CD KEY
TO CONNECTOR 1403
DISC1
DISC2
DISC3
Open/Close
For CDC3 version.
For CDSL version.
For provision only

	/22	non/22
3401	47k	680k

CDC3	VIDEM
NC	NC
OE_LATCH	NC
SICL	NC
GND	GND
SILD	TRQ
DATA	SCK
PORE	RESET
SH_CLK	USRS1
STR_OUTP	USRS0
SW_INFO	GND

CHIP LAYOUT

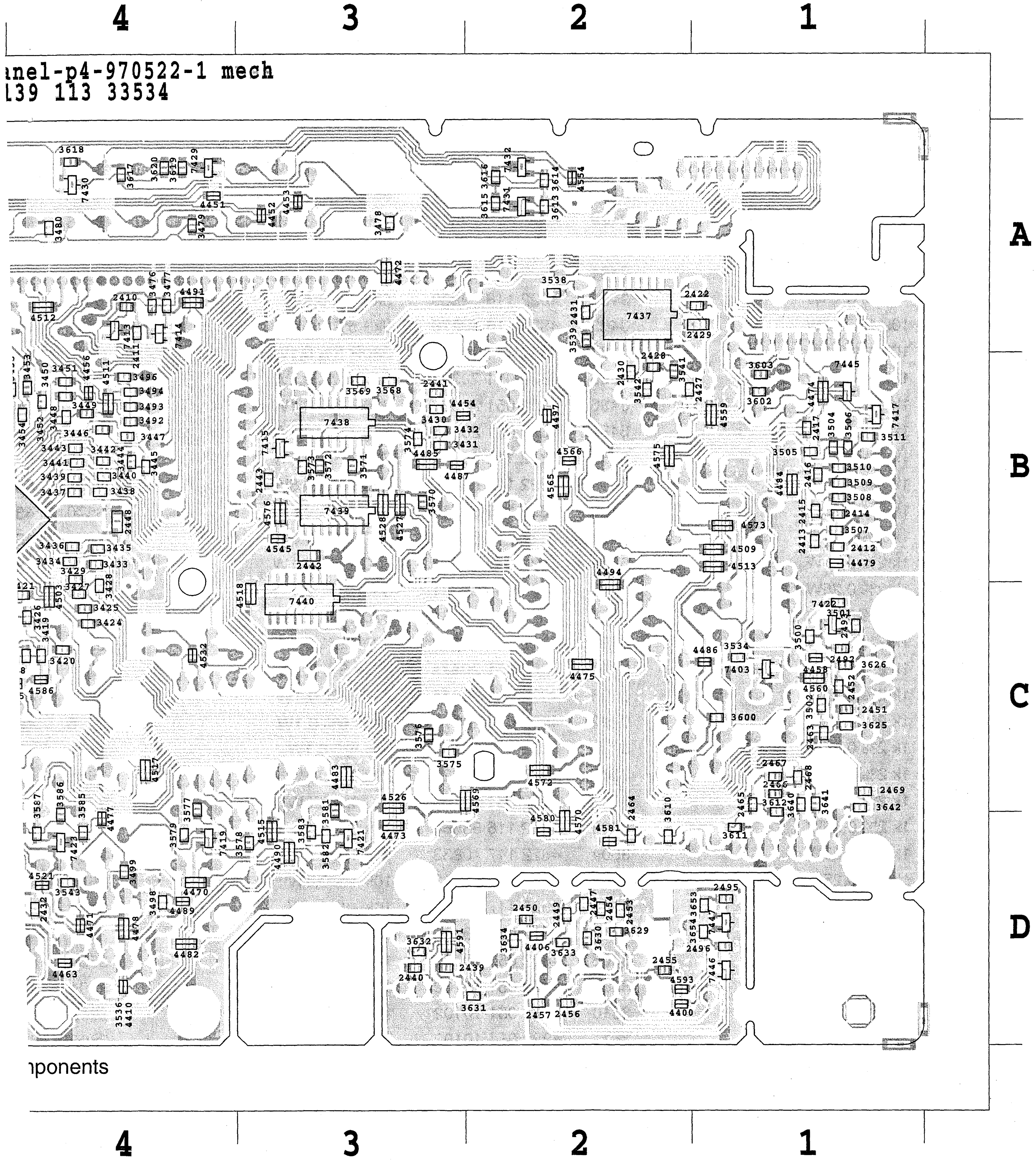
2417 B 1	2452 C 1	2476 D 6	3405 B 5	3430 B 3	3454 B 4	3478 A 3	3509 B 1	3541 B 2	3587 D 4	3620 A 4	3644 C 7	4410 D 4	4473 D 3	4501 A 6	4530 B 7	4579 C 5	7417 B 1
2418 D 6	2453 D 2	2478 A 6	3406 B 5	3431 B 3	3455 B 4	3479 A 4	3510 B 1	3542 B 2	3589 D 5	3621 A 6	3645 C 7	4450 A 5	4474 B 1	4502 B 6	4532 C 4	4580 D 2	7418 C 5
2419 D 6	2454 D 2	2479 A 6	3407 B 5	3432 B 3	3456 B 4	3480 A 4	3511 B 1	3543 D 4	3590 C 5	3622 A 6	3646 C 7	4451 A 4	4475 C 2	4503 C 4	4535 B 7	4581 D 2	7419 D 4
2422 A 1	2455 D 2	2480 A 6	3408 B 5	3433 B 4	3457 B 5	3481 A 5	3512 D 6	3544 D 4	3591 D 5	3623 A 6	3647 C 7	4452 A 3	4476 C 5	4504 C 5	4545 B 3	4582 C 7	7421 D 3
2424 B 7	2456 D 2	2481 A 6	3409 C 5	3434 B 4	3458 B 5	3484 A 5	3513 D 6	3545 D 4	3600 C 1	3624 A 6	3648 C 7	4453 A 3	4477 D 4	4506 C 5	4554 A 2	4583 C 6	7422 C 1
2427 B 2	2457 D 2	2482 D 5	3410 B 5	3435 B 4	3459 B 5	3485 A 5	3514 D 6	3546 D 5	3601 A 7	3625 C 1	3649 D 6	4454 B 3	4478 D 4	4507 D 6	4559 B 1	4584 A 7	7423 D 4
2428 B 2	2458 C 7	2483 D 5	3411 C 5	3436 B 4	3460 B 5	3486 A 5	3515 D 6	3547 D 5	3602 B 1	3626 C 1	3650 B 6	4455 B 5	4479 B 1	4508 B 6	4560 C 1	4585 C 4	7425 D 5



This assembly drawings shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

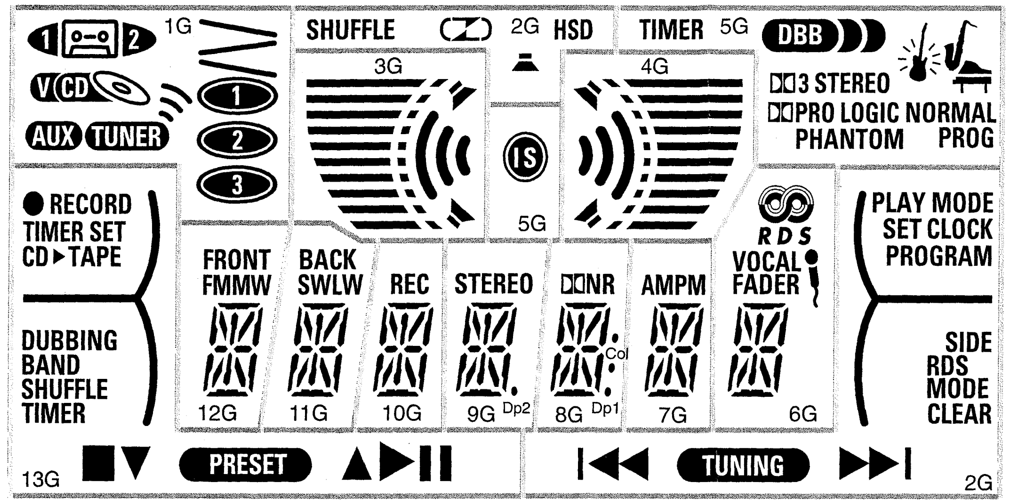
B 2	3587 D 4	3620 A 4	3644 C 7	4410 D 4	4473 D 3	4501 A 6	4530 B 7	4579 C 5	7417 B 1
B 2	3589 D 5	3621 A 6	3645 C 7	4450 A 5	4474 B 1	4502 B 6	4532 C 4	4580 D 2	7418 C 5
D 4	3590 C 5	3622 A 6	3646 C 7	4451 A 4	4475 C 2	4503 C 4	4535 B 7	4581 D 2	7419 D 4
D 4	3591 D 5	3623 A 6	3647 C 7	4452 A 3	4476 C 5	4504 C 5	4545 B 3	4582 C 7	7421 D 3
D 4	3600 C 1	3624 A 6	3648 C 7	4453 A 3	4477 D 4	4506 C 5	4554 A 2	4583 C 6	7422 C 1
D 5	3601 A 7	3625 C 1	3649 D 6	4454 B 3	4478 D 4	4507 D 6	4559 B 1	4584 A 7	7423 D 4
D 5	3602 B 1	3626 C 1	3650 B 6	4455 B 5	4479 B 1	4508 B 6	4560 C 1	4585 C 4	7425 D 5

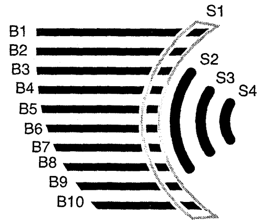
nel-p4-970522-1 mech
139 113 33534


4
3
2
1
A
B
C
D
7437
7438
7439
7440
7403

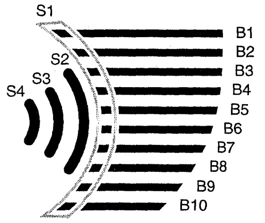
ponents

LCD DISPLAY PIN CONNECTIONS

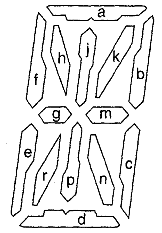

1G
SHUFFLE
2G
HSD
TIMER
5G
DBB
V CD
AUX
TUNER
1
2
3
3G
4G
IS
5G
3 STEREO
PRO LOGIC NORMAL
PHANTOM PROG
RECORD
TIMER SET
CD▸TAPE
RDS
VOCAL FADER
PLAY MODE
SET CLOCK
PROGRAM
FRONT FMMW
BACK SWLW
REC
STEREO
NR
AMPM
DUBBING
BAND
SHUFFLE
TIMER
12G
11G
10G
9G
Dp2
8G
Dp1
Col
7G
6G
SIDE
RDS MODE
CLEAR
13G
PRESET
TUNING
2G


S1
S2
S3
S4
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10

(3G)


S1
S2
S3
S4
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10

(4G)


a
b
c
d
e
f
g
h
j
k
m
n
p
r

(6G - 12G)

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G
P1	1	SHUFFLE	B1	B1	IS	a	a	a	a	a	a	a	● RECORD
P2	▭	)	B2	B2	○	b	b	b	b	b	b	b	TIMER SET
P3	2	(	B3	B3	TIMER	f	f	f	f	f	f	f	CD▸TAPE
P4	V	Σ	B4	B4	DBB	h	h	h	h	h	h	h	DUBBING
P5	CD	HSD	B5	B5	)	k	k	k	k	k	k	k	BAND
P6	AUX	▲	B6	B6	)	j , p	j , p	j , p	j , p	j , p	j , p	j , p	SHUFFLE
P7	TUNER	PLAY MODE	B7	B7	🎸	g	g	g	g	g	g	g	TIMER
P8	—	SET CLOCK	B8	B8	✳	m	m	m	m	m	m	m	⊣
P9	—	PROGRAM	B9	B9	🎷	e	e	e	e	e	e	e	PRESET
P10	—	SIDE	B10	B10	🎹	c	c	c	c	c	c	c	■
P11	1	RDS MODE	S1	S1	3 STEREO	n	n	n	n	n	n	n	▼ ▲
P12	2	CLEAR	S4	S4	PRO LOGIC	r	r	r	r	r	r	r	▶
P13	3	├	S3	S3	PHANTOM	d	d	d	d	d	d	d	❚❚
P14	(1)	I I	S2	S2	NORMAL	VOCAL FADER	AM	NR	STEREO	REC	BACK	FRONT	-
P15	(2)	◀◀ ▶▶	/	\	PROG	RDS	PM	. Dp 1	. Dp 2	-	SW	FM	-
P16	(3)	TUNING	\	/	-	-	-	: col	-	-	LW	MW	-

ELECTRICAL PART LIST - FRONT BOARD

MISCELLANEOUS

1400	4822 135 00091	FTD Display
1401	4822 267 51238	16 Pin Connector
1440	4822 276 13114	Tact Switch
1441	4822 276 13114	Tact Switch
1442	4822 276 13114	Tact Switch
1443	4822 276 13114	Tact Switch
1444	4822 276 13114	Tact Switch
1445	4822 276 13114	Tact Switch
1446	4822 276 13114	Tact Switch
1447	4822 276 13114	Tact Switch
1448	4822 276 13114	Tact Switch
1449	4822 276 13114	Tact Switch
1450	4822 276 13114	Tact Switch
1451	4822 276 13114	Tact Switch
1452	4822 276 13114	Tact Switch
1453	4822 276 13114	Tact Switch
1454	4822 276 13114	Tact Switch
1455	4822 276 13114	Tact Switch
1456	4822 276 13114	Tact Switch
1457	4822 276 13114	Tact Switch
1458	4822 276 13114	Tact Switch
1459	4822 276 13114	Tact Switch
1460	4822 276 13114	Tact Switch
1461	4822 276 13114	Tact Switch
1462	4822 276 13114	Tact Switch
1464	4822 276 13114	Tact Switch
1465	4822 276 13114	Tact Switch
1466	4822 276 13114	Tact Switch
1467	4822 276 13114	Tact Switch
1470	4822 101 21261	Rotary Encoder

CAPACITORS

2400	4822 122 32504	15pF 2% 63V
2401	4822 122 32504	15pF 2% 63V
2402	5322 122 32659	33pF 5% 50V
2403	5322 122 32659	33pF 5% 50V
2404	4822 126 13473	220nF 80-20% 50V
2405	4822 126 13838	100nF +80/-20% 50V
2406	4822 122 33177	10nF 20% 50V
2407	4822 122 33177	10nF 20% 50V
2408	4822 122 33175	2,2nF 20% 50V
2409	4822 122 33797	47nF 20% 50V
2410	5322 122 32531	100pF 5% 50V
2411	5322 122 32531	100pF 5% 50V
2412	5322 122 32531	100pF 5% 50V
2413	5322 122 32452	47pF 5% 63V
2414	5322 122 32452	47pF 5% 63V
2415	5322 122 32452	47pF 5% 63V
2416	5322 122 32452	47pF 5% 63V
2417	5322 122 32452	47pF 5% 63V
2418	4822 126 14043	1µF +80-20% 16V
2419	4822 126 14043	1µF +80-20% 16V
2420	4822 124 40244	2,2µF 20% 63V

CAPACITORS

2421	4822 124 41584	100µF 20% 10V
2423	4822 124 42446	100µF 20% 10V
2424	4822 126 14083	4U7 10V.
2425	4822 124 42446	100µF 20% 10V
2432	4822 126 13838	100nF +80/-20% 50V
2433	4822 126 14043	1µF +80-20% 16V
2441	5322 122 32531	100pF 5% 50V
2442	4822 126 14083	4U7 10V.
2443	4822 126 13838	100nF +80/-20% 50V
2444	4822 126 13838	100nF +80/-20% 50V
2445	4822 126 13838	100nF +80/-20% 50V
2446	4822 124 42446	100µF 20% 10V
2448	4822 126 14083	4U7 10V.
2451	5322 122 32448	10pF 5% 50V
2452	5322 122 32448	10pF 5% 50V
2463	5322 122 32448	10pF 5% 50V
2464	5322 122 32448	10pF 5% 50V
2465	5322 122 32448	10pF 5% 50V
2466	5322 122 32448	10pF 5% 50V
2467	5322 122 32448	10pF 5% 50V
2468	5322 122 32448	10pF 5% 50V
2469	5322 122 32448	10pF 5% 50V
2476	4822 122 32535	680pF 10% 63V
2477	4822 124 42446	100µF 20% 10V
2478	4822 126 13473	220nF 80-20% 50V
2479	4822 126 13473	220nF 80-20% 50V
2480	4822 126 13473	220nF 80-20% 50V
2481	4822 126 13473	220nF 80-20% 50V
2482	5322 122 32448	10pF 5% 50V
2483	5322 122 32448	10pF 5% 50V
2486	5322 122 32661	56pF 5% 50V
2487	5322 122 32661	56pF 5% 50V
2488	5322 122 32661	56pF 5% 50V
2489	5322 122 32661	56pF 5% 50V
2490	5322 122 32661	56pF 5% 50V
2491	5322 122 32448	10pF 5% 50V
2700	4822 122 33177	10nF 20% 50V
2701	4822 122 33177	10nF 20% 50V

RESISTORS

3400	4822 051 10102	1k 2% 0,25W
3401	4822 051 20684	680k 5% 0,1W
3402	4822 051 20105	1M 5% 0,1W
3403	4822 051 10102	1k 2% 0,25W
3404	4822 051 10102	1k 2% 0,25W
3405	4822 051 10102	1k 2% 0,25W
3406	4822 051 10102	1k 2% 0,25W
3407	4822 051 10102	1k 2% 0,25W
3408	4822 051 10102	1k 2% 0,25W
3409	4822 051 10102	1k 2% 0,25W
3410	4822 117 10833	10k 1% 0,1W
3411	4822 117 11449	2k2 1% 0,1W
3412	4822 117 11449	2k2 1% 0,1W

ELECTRICAL PART LIST - FRONT BOARD

RESISTORS

3413	4822 051 10102	1k 2% 0,25W
3414	4822 051 10102	1k 2% 0,25W
3415	4822 051 10102	1k 2% 0,25W
3416	4822 051 10102	1k 2% 0,25W
3417	4822 051 10102	1k 2% 0,25W
3418	4822 051 10102	1k 2% 0,25W
3419	4822 051 10102	1k 2% 0,25W
3420	4822 051 10102	1k 2% 0,25W
3421	4822 051 10102	1k 2% 0,25W
3422	4822 050 11002	1k 1% 0,4W
3423	4822 051 10102	1k 2% 0,25W
3424	4822 051 10102	1k 2% 0,25W
3425	4822 051 10102	1k 2% 0,25W
3426	4822 051 10102	1k 2% 0,25W
3427	4822 051 10102	1k 2% 0,25W
3428	4822 051 10102	1k 2% 0,25W
3429	4822 051 10102	1k 2% 0,25W
3430	4822 117 10833	10k 1% 0,1W
3431	4822 117 10833	10k 1% 0,1W
3432	4822 117 10833	10k 1% 0,1W
3433	4822 051 10102	1k 2% 0,25W
3434	4822 051 10102	1k 2% 0,25W
3435	4822 051 10102	1k 2% 0,25W
3436	4822 051 10102	1k 2% 0,25W
3437	4822 051 10102	1k 2% 0,25W
3438	4822 051 10102	1k 2% 0,25W
3439	4822 051 10102	1k 2% 0,25W
3440	4822 051 10102	1k 2% 0,25W
3441	4822 051 10102	1k 2% 0,25W
3442	4822 051 10102	1k 2% 0,25W
3443	4822 051 10102	1k 2% 0,25W
3444	4822 051 10102	1k 2% 0,25W
3445	4822 051 10102	1k 2% 0,25W
3446	4822 051 10102	1k 2% 0,25W
3447	4822 051 10102	1k 2% 0,25W
3448	4822 051 10102	1k 2% 0,25W
3449	4822 051 10102	1k 2% 0,25W
3450	4822 051 10102	1k 2% 0,25W
3451	4822 051 10102	1k 2% 0,25W
3452	4822 051 10102	1k 2% 0,25W
3453	4822 051 10102	1k 2% 0,25W
3454	4822 051 10102	1k 2% 0,25W
3455	4822 051 10102	1k 2% 0,25W
3456	4822 051 10102	1k 2% 0,25W
3457	4822 051 10102	1k 2% 0,25W
3458	4822 051 10102	1k 2% 0,25W
3459	4822 051 10102	1k 2% 0,25W
3460	4822 051 10102	1k 2% 0,25W
3461	4822 051 10102	1k 2% 0,25W
3462	4822 117 10833	10k 1% 0,1W
3463	4822 117 10833	10k 1% 0,1W
3464	4822 051 10102	1k 2% 0,25W
3465	4822 051 20101	100R 5% 0,1W

RESISTORS

3466	4822 051 20101	100R 5% 0,1W
3467	4822 051 20101	100R 5% 0,1W
3468	4822 051 20101	100R 5% 0,1W
3469	4822 117 10833	10k 1% 0,1W
3470	4822 051 10102	1k 2% 0,25W
3471	4822 117 10833	10k 1% 0,1W
3472	4822 051 20104	100k 5% 0,1W
3473	4822 051 10102	1k 2% 0,25W
3474	4822 117 10833	10k 1% 0,1W
3475	4822 051 20478	4R7 5% 0,1W
3476	4822 051 20104	100k 5% 0,1W
3477	4822 051 20104	100k 5% 0,1W
3478	4822 051 20681	680R 5% 0,1W
3479	4822 051 20681	680R 5% 0,1W
3480	4822 051 20681	680R 5% 0,1W
3481	4822 051 20681	680R 5% 0,1W
3482	4822 116 52289	5k6 5% 0,5W
3483	4822 116 52276	3k9 5% 0,5W
3484	4822 051 20331	330R 5% 0,1W
3485	4822 051 20331	330R 5% 0,1W
3486	4822 051 20331	330R 5% 0,1W
3487	4822 051 20331	330R 5% 0,1W
3488	4822 116 52219	330R 5% 0,5W
3489	4822 116 52219	330R 5% 0,5W
3490	4822 116 52219	330R 5% 0,5W
3491	4822 116 52219	330R 5% 0,5W
3492	4822 051 20331	330R 5% 0,1W
3493	4822 051 20331	330R 5% 0,1W
3494	4822 051 20331	330R 5% 0,1W
3496	4822 051 20331	330R 5% 0,1W
3497	4822 051 20474	470k 5% 0,1W
3498	4822 051 20474	470k 5% 0,1W
3499	4822 051 20474	470k 5% 0,1W
3500	4822 051 20562	5k6 5% 0,1W
3501	4822 051 20223	22k 5% 0,1W
3502	4822 051 10102	1k 2% 0,25W
3503	4822 116 83864	10k 5% 0,5W
3504	4822 117 10833	10k 1% 0,1W
3505	4822 117 10833	10k 1% 0,1W
3506	4822 117 10833	10k 1% 0,1W
3507	4822 051 10102	1k 2% 0,25W
3508	4822 051 10102	1k 2% 0,25W
3509	4822 051 10102	1k 2% 0,25W
3510	4822 051 10102	1k 2% 0,25W
3511	4822 051 10102	1k 2% 0,25W
3512	4822 051 20562	5k6 5% 0,1W
3513	4822 051 20562	5k6 5% 0,1W
3514	4822 051 20474	470k 5% 0,1W
3515	4822 051 20563	56k 5% 0,1W
3516	4822 051 20153	15k 5% 0,1W
3517	4822 051 20153	15k 5% 0,1W
3518	4822 116 52245	150k 5% 0,5W
3519	4822 051 10102	1k 2% 0,25W

ELECTRIC

RESISTOR

3521	482
3522	482
3523	482
3524	482
3525	482
3526	482
3527	482
3528	482
3529	482
3530	482
3531	482
3532	482
3533	482
3535	482
3536	482
3538	482
3539	482
3543	482
3544	482
3545	482
3546	482
3547	482
3568	482
3569	482
3570	482
3571	48
3572	48
3573	48
3574	48
3575	48
3576	48
3577	482
3578	482
3579	482
3581	482
3582	482
3583	482
3585	482
3586	482
3587	482
3589	482
3590	482
3591	482
3602	482
3603	482
3604	482
3605	482
3606	482
3607	482
3608	482
3609	482
3610	482
3611	482

ELECTRICAL PART LIST - FRONT BOARD

RESISTORS		
3413	4822 051 10102	1k 2% 0,25W
3414	4822 051 10102	1k 2% 0,25W
3415	4822 051 10102	1k 2% 0,25W
3416	4822 051 10102	1k 2% 0,25W
3417	4822 051 10102	1k 2% 0,25W
3418	4822 051 10102	1k 2% 0,25W
3419	4822 051 10102	1k 2% 0,25W
3420	4822 051 10102	1k 2% 0,25W
3421	4822 051 10102	1k 2% 0,25W
3422	4822 050 11002	1k 1% 0,4W
3423	4822 051 10102	1k 2% 0,25W
3424	4822 051 10102	1k 2% 0,25W
3425	4822 051 10102	1k 2% 0,25W
3426	4822 051 10102	1k 2% 0,25W
3427	4822 051 10102	1k 2% 0,25W
3428	4822 051 10102	1k 2% 0,25W
3429	4822 051 10102	1k 2% 0,25W
3430	4822 117 10833	10k 1% 0,1W
3431	4822 117 10833	10k 1% 0,1W
3432	4822 117 10833	10k 1% 0,1W
3433	4822 051 10102	1k 2% 0,25W
3434	4822 051 10102	1k 2% 0,25W
3435	4822 051 10102	1k 2% 0,25W
3436	4822 051 10102	1k 2% 0,25W
3437	4822 051 10102	1k 2% 0,25W
3438	4822 051 10102	1k 2% 0,25W
3439	4822 051 10102	1k 2% 0,25W
3440	4822 051 10102	1k 2% 0,25W
3441	4822 051 10102	1k 2% 0,25W
3442	4822 051 10102	1k 2% 0,25W
3443	4822 051 10102	1k 2% 0,25W
3444	4822 051 10102	1k 2% 0,25W
3445	4822 051 10102	1k 2% 0,25W
3446	4822 051 10102	1k 2% 0,25W
3447	4822 051 10102	1k 2% 0,25W
3448	4822 051 10102	1k 2% 0,25W
3449	4822 051 10102	1k 2% 0,25W
3450	4822 051 10102	1k 2% 0,25W
3451	4822 051 10102	1k 2% 0,25W
3452	4822 051 10102	1k 2% 0,25W
3453	4822 051 10102	1k 2% 0,25W
3454	4822 051 10102	1k 2% 0,25W
3455	4822 051 10102	1k 2% 0,25W
3456	4822 051 10102	1k 2% 0,25W
3457	4822 051 10102	1k 2% 0,25W
3458	4822 051 10102	1k 2% 0,25W
3459	4822 051 10102	1k 2% 0,25W
3460	4822 051 10102	1k 2% 0,25W
3461	4822 051 10102	1k 2% 0,25W
3462	4822 117 10833	10k 1% 0,1W
3463	4822 117 10833	10k 1% 0,1W
3464	4822 051 10102	1k 2% 0,25W
3465	4822 051 20101	100R 5% 0,1W

RESISTORS		
3466	4822 051 20101	100R 5% 0,1W
3467	4822 051 20101	100R 5% 0,1W
3468	4822 051 20101	100R 5% 0,1W
3469	4822 117 10833	10k 1% 0,1W
3470	4822 051 10102	1k 2% 0,25W
3471	4822 117 10833	10k 1% 0,1W
3472	4822 051 20104	100k 5% 0,1W
3473	4822 051 10102	1k 2% 0,25W
3474	4822 117 10833	10k 1% 0,1W
3475	4822 051 20478	4R7 5% 0,1W
3476	4822 051 20104	100k 5% 0,1W
3477	4822 051 20104	100k 5% 0,1W
3478	4822 051 20681	680R 5% 0,1W
3479	4822 051 20681	680R 5% 0,1W
3480	4822 051 20681	680R 5% 0,1W
3481	4822 051 20681	680R 5% 0,1W
3482	4822 116 52289	5k6 5% 0,5W
3483	4822 116 52276	3k9 5% 0,5W
3484	4822 051 20331	330R 5% 0,1W
3485	4822 051 20331	330R 5% 0,1W
3486	4822 051 20331	330R 5% 0,1W
3487	4822 051 20331	330R 5% 0,1W
3488	4822 116 52219	330R 5% 0,5W
3489	4822 116 52219	330R 5% 0,5W
3490	4822 116 52219	330R 5% 0,5W
3491	4822 116 52219	330R 5% 0,5W
3492	4822 051 20331	330R 5% 0,1W
3493	4822 051 20331	330R 5% 0,1W
3494	4822 051 20331	330R 5% 0,1W
3496	4822 051 20331	330R 5% 0,1W
3497	4822 051 20474	470k 5% 0,1W
3498	4822 051 20474	470k 5% 0,1W
3499	4822 051 20474	470k 5% 0,1W
3500	4822 051 20562	5k6 5% 0,1W
3501	4822 051 20223	22k 5% 0,1W
3502	4822 051 10102	1k 2% 0,25W
3503	4822 116 83864	10k 5% 0,5W
3504	4822 117 10833	10k 1% 0,1W
3505	4822 117 10833	10k 1% 0,1W
3506	4822 117 10833	10k 1% 0,1W
3507	4822 051 10102	1k 2% 0,25W
3508	4822 051 10102	1k 2% 0,25W
3509	4822 051 10102	1k 2% 0,25W
3510	4822 051 10102	1k 2% 0,25W
3511	4822 051 10102	1k 2% 0,25W
3512	4822 051 20562	5k6 5% 0,1W
3513	4822 051 20562	5k6 5% 0,1W
3514	4822 051 20474	470k 5% 0,1W
3515	4822 051 20563	56k 5% 0,1W
3516	4822 051 20153	15k 5% 0,1W
3517	4822 051 20153	15k 5% 0,1W
3518	4822 116 52245	150k 5% 0,5W
3519	4822 051 10102	1k 2% 0,25W

ELECTRICAL PART LIST - FRONT BOARD

RESISTORS		
3521	4822 051 10102	1k 2% 0,25W
3522	4822 116 83884	47k 5% 0,5W
3523	4822 051 20472	4k7 5% 0,1W
3524	4822 051 10102	1k 2% 0,25W
3525	4822 051 10102	1k 2% 0,25W
3526	4822 051 10102	1k 2% 0,25W
3527	4822 051 10102	1k 2% 0,25W
3528	4822 051 10102	1k 2% 0,25W
3529	4822 051 10102	1k 2% 0,25W
3530	4822 051 10102	1k 2% 0,25W
3531	4822 052 10108 ⚠	1R 5% 0,33W
3532	4822 052 10108 ⚠	1R 5% 0,33W
3533	4822 051 20392	3k9 5% 0,1W
3535	4822 116 52276	3k9 5% 0,5W
3536	4822 051 20681	680R 5% 0,1W
3538	4822 117 10833	10k 1% 0,1W
3539	4822 117 10833	10k 1% 0,1W
3543	4822 051 20478	4R7 5% 0,1W
3544	4822 117 10833	10k 1% 0,1W
3545	4822 117 10833	10k 1% 0,1W
3546	4822 051 10102	1k 2% 0,25W
3547	4822 051 10102	1k 2% 0,25W
3568	4822 051 20331	330R 5% 0,1W
3569	4822 051 20331	330R 5% 0,1W
3570	4822 051 20331	330R 5% 0,1W
3571	4822 051 20333	33k 5% 0,1W
3572	4822 117 10833	10k 1% 0,1W
3573	4822 051 20104	100k 5% 0,1W
3574	4822 051 20105	1M 5% 0,1W
3575	4822 051 20331	330R 5% 0,1W
3576	4822 051 20331	330R 5% 0,1W
3577	4822 117 11503	220R 1% 0.1W
3578	4822 117 11503	220R 1% 0.1W
3579	4822 051 20472	4k7 5% 0,1W
3581	4822 117 11503	220R 1% 0.1W
3582	4822 117 11503	220R 1% 0.1W
3583	4822 051 20472	4k7 5% 0,1W
3585	4822 117 11503	220R 1% 0.1W
3586	4822 117 11503	220R 1% 0.1W
3587	4822 051 20472	4k7 5% 0,1W
3589	4822 117 11503	220R 1% 0.1W
3590	4822 117 11503	220R 1% 0.1W
3591	4822 051 20472	4k7 5% 0,1W
3602	4822 051 20331	330R 5% 0,1W
3603	4822 051 20331	330R 5% 0,1W
3604	4822 051 20472	4k7 5% 0,1W
3605	4822 051 20683	68k 5% 0,1W
3606	4822 051 20683	68k 5% 0,1W
3607	4822 051 20472	4k7 5% 0,1W
3608	4822 051 20683	68k 5% 0,1W
3609	4822 051 20683	68k 5% 0,1W
3610	4822 117 10833	10k 1% 0,1W
3611	4822 117 10833	10k 1% 0,1W

RESISTORS		
3612	4822 117 10833	10k 1% 0,1W
3613	4822 051 20472	4k7 5% 0,1W
3614	4822 051 20472	4k7 5% 0,1W
3615	4822 051 20681	680R 5% 0,1W
3616	4822 051 20101	100R 5% 0,1W
3617	4822 051 20472	4k7 5% 0,1W
3618	4822 051 20472	4k7 5% 0,1W
3619	4822 051 20681	680R 5% 0,1W
3620	4822 051 20101	100R 5% 0,1W
3621	4822 051 20472	4k7 5% 0,1W
3622	4822 051 20472	4k7 5% 0,1W
3623	4822 051 20681	680R 5% 0,1W
3624	4822 051 20101	100R 5% 0,1W
3625	4822 051 10102	1k 2% 0,25W
3626	4822 051 10102	1k 2% 0,25W
3627	4822 051 10102	1k 2% 0,25W
3628	4822 051 10102	1k 2% 0,25W
3640	4822 051 10102	1k 2% 0,25W
3641	4822 051 10102	1k 2% 0,25W
3642	4822 051 10102	1k 2% 0,25W
3644	4822 051 10102	1k 2% 0,25W
3646	4822 051 10102	1k 2% 0,25W
3648	4822 051 10102	1k 2% 0,25W
3649	4822 051 20228	2R2 5% 0,1W
3650	4822 051 10102	1k 2% 0,25W
3651	4822 051 10102	1k 2% 0,25W
3652	4822 051 10102	1k 2% 0,25W
3700	4822 117 10833	10k 1% 0,1W
3701	4822 117 10833	10k 1% 0,1W
4404	4822 051 20008	0R Jumper 0805
4407	4822 051 20008	0R Jumper 0805
4408	4822 051 20008	0R Jumper 0805
4409	4822 051 20008	0R Jumper 0805
4450	4822 051 20008	0R Jumper 0805
4451	4822 051 20008	0R Jumper 0805
4452	4822 051 20008	0R Jumper 0805
4453	4822 051 20008	0R Jumper 0805
4454	4822 051 20008	0R Jumper 0805
4455	4822 051 20008	0R Jumper 0805
4456	4822 051 20008	0R Jumper 0805
4457	4822 051 20008	0R Jumper 0805
4458	4822 051 20008	0R Jumper 0805
4459	4822 051 10008	0R Jumper 1206
4460	4822 051 20008	0R Jumper 0805
4461	4822 051 10008	0R Jumper 1206
4462	4822 051 10008	0R Jumper 1206
4463	4822 051 20008	0R Jumper 0805
4464	4822 051 10008	0R Jumper 1206
4465	4822 051 10008	0R Jumper 1206
4466	4822 051 10008	0R Jumper 1206
4467	4822 051 10008	0R Jumper 1206
4468	4822 051 20008	0R Jumper 0805
4469	4822 051 10008	0R Jumper 1206

ELECTRICAL PART LIST - FRONT BOARD

RESISTORS

4470	4822 051 10008	0R Jumper 1206
4471	4822 051 20008	0R Jumper 0805
4472	4822 051 10008	0R Jumper 1206
4473	4822 051 10008	0R Jumper 1206
4474	4822 051 10008	0R Jumper 1206
4475	4822 051 10008	0R Jumper 1206
4476	4822 051 10008	0R Jumper 1206
4477	4822 051 20008	0R Jumper 0805
4478	4822 051 10008	0R Jumper 1206
4479	4822 051 20008	0R Jumper 0805
4482	4822 051 10008	0R Jumper 1206
4483	4822 051 10008	0R Jumper 1206
4484	4822 051 10008	0R Jumper 1206
4485	4822 051 10008	0R Jumper 1206
4486	4822 051 20008	0R Jumper 0805
4487	4822 051 20008	0R Jumper 0805
4488	4822 051 20008	0R Jumper 0805
4489	4822 051 20008	0R Jumper 0805
4490	4822 051 10008	0R Jumper 1206
4491	4822 051 10008	0R Jumper 1206
4492	4822 051 10008	0R Jumper 1206
4494	4822 051 10008	0R Jumper 1206
4495	4822 051 20008	0R Jumper 0805
4496	4822 051 10008	0R Jumper 1206
4497	4822 051 20008	0R Jumper 0805
4498	4822 051 20008	0R Jumper 0805
4500	4822 051 10008	0R Jumper 1206
4501	4822 051 10008	0R Jumper 1206
4502	4822 051 10008	0R Jumper 1206
4503	4822 051 10008	0R Jumper 1206
4504	4822 051 10008	0R Jumper 1206
4506	4822 051 10008	0R Jumper 1206
4507	4822 051 20008	0R Jumper 0805
4508	4822 051 10008	0R Jumper 1206
4509	4822 051 10008	0R Jumper 1206
4510	4822 051 10008	0R Jumper 1206
4511	4822 051 10008	0R Jumper 1206
4512	4822 051 10008	0R Jumper 1206
4513	4822 051 10008	0R Jumper 1206
4515	4822 051 10008	0R Jumper 1206
4516	4822 051 10008	0R Jumper 1206
4517	4822 051 10008	0R Jumper 1206
4518	4822 051 10008	0R Jumper 1206
4521	4822 051 20008	0R Jumper 0805
4522	4822 051 10008	0R Jumper 1206
4523	4822 051 10008	0R Jumper 1206
4524	4822 051 20008	0R Jumper 0805
4525	4822 051 20008	0R Jumper 0805
4526	4822 051 10008	0R Jumper 1206
4527	4822 051 10008	0R Jumper 1206
4528	4822 051 10008	0R Jumper 1206
4530	4822 051 10008	0R Jumper 1206
4532	4822 051 20008	0R Jumper 0805

RESISTORS

4535	4822 051 20008	0R Jumper 0805
4545	4822 051 20008	0R Jumper 0805
4554	4822 051 20008	0R Jumper 0805
4559	4822 051 10008	0R Jumper 1206
4560	4822 051 10008	0R Jumper 1206
4562	4822 051 10008	0R Jumper 1206
4563	4822 051 10008	0R Jumper 1206
4564	4822 051 10008	0R Jumper 1206
4565	4822 051 10008	0R Jumper 1206
4566	4822 051 20008	0R Jumper 0805
4567	4822 051 10008	0R Jumper 1206
4568	4822 051 10008	0R Jumper 1206
4569	4822 051 10008	0R Jumper 1206
4570	4822 051 10008	0R Jumper 1206
4571	4822 051 10008	0R Jumper 1206
4572	4822 051 10008	0R Jumper 1206
4573	4822 051 10008	0R Jumper 1206
4574	4822 051 10008	0R Jumper 1206
4575	4822 051 10008	0R Jumper 1206
4576	4822 051 10008	0R Jumper 1206
4577	4822 051 20008	0R Jumper 0805
4578	4822 051 10008	0R Jumper 1206
4579	4822 051 10008	0R Jumper 1206
4580	4822 051 20008	0R Jumper 0805
4581	4822 051 20008	0R Jumper 0805
4582	4822 051 10008	0R Jumper 1206
4583	4822 051 10008	0R Jumper 1206
4584	4822 051 20008	0R Jumper 0805
4585	4822 051 10008	0R Jumper 1206
4586	4822 051 20008	0R Jumper 0805
4587	4822 051 10008	0R Jumper 1206
4588	4822 051 10008	0R Jumper 1206
4589	4822 051 10008	0R Jumper 1206
4590	4822 051 20008	0R Jumper 0805
4597	4822 051 10008	0R Jumper 1206

COILS & FILTERS

5400	4822 242 70938	X'tal Resonator 32,768kHz
5401	4822 242 72066	Ceram Resonator 8MHz
5403	4822 156 21721	Coil 2,2μH 10%
5405	4822 157 52983	Coil 22μH 10%
5406	4822 157 52983	Coil 22μH 10%
5407	4822 157 52983	Coil 22μH 10%
5408	4822 157 52983	Coil 22μH 10%

DIODES

6400	4822 130 31983	BAT85
6401	5322 130 30684	1N4002RL
6402	4822 130 30621	1N4148
6405	4822 130 30621	1N4148
6406	4822 130 30621	1N4148
6407	4822 130 30621	1N4148
6408	4822 130 10791	LTL-1CHGE

ELECTRICAL PART LIST - FRONT BOARD

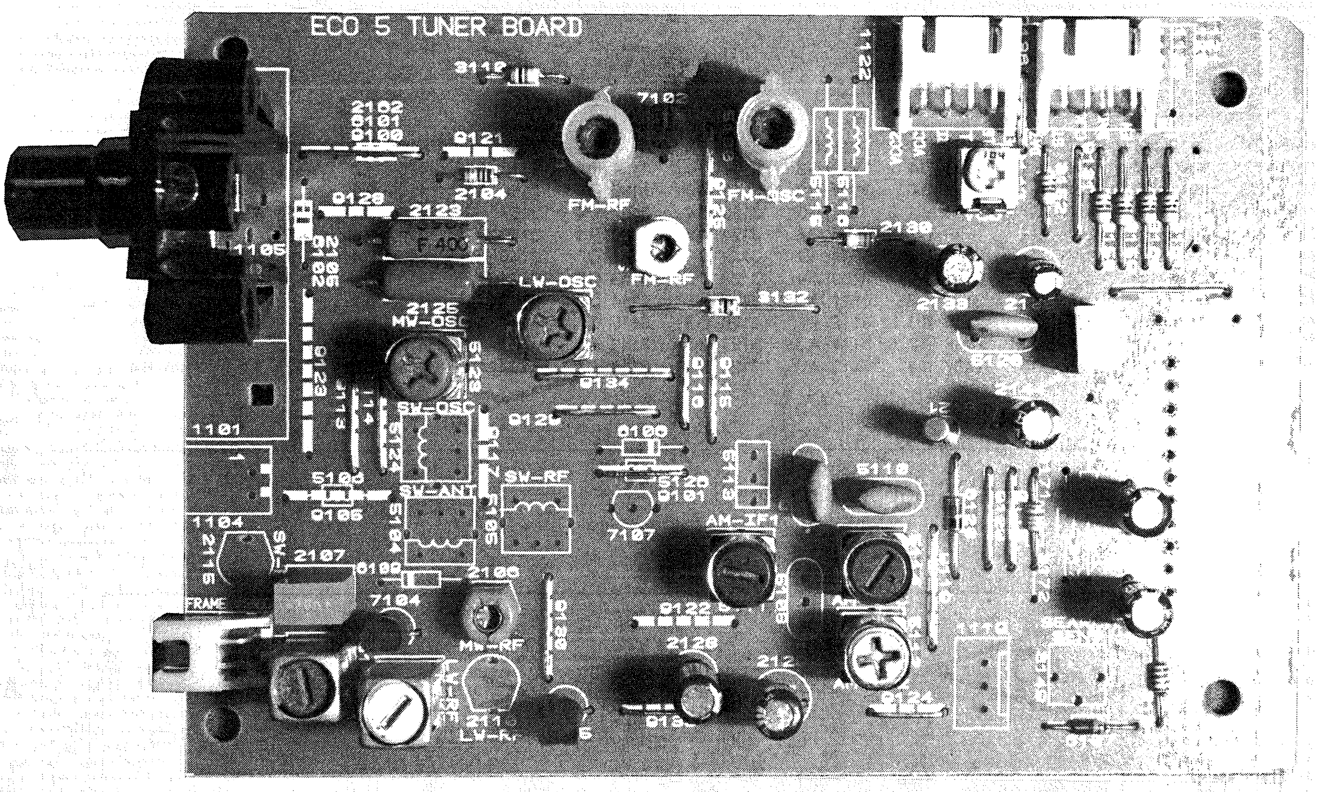
DIODES

6409	4822 130 10791	LTL-1CHGE
6410	4822 130 10791	LTL-1CHGE
6411	4822 130 10791	LTL-1CHGE
6412	4822 130 30621	1N4148
6425	4822 130 10791	LTL-1CHGE
6426	4822 130 10792	LTL-1CHPE
6427	4822 130 10774	LTL-293SJ
6428	4822 130 10774	LTL-293SJ
6429	4822 130 10774	LTL-293SJ
6430	4822 130 10774	LTL-293SJ
6431	4822 130 10774	LTL-293SJ
6432	4822 130 10774	LTL-293SJ
6433	4822 130 10774	LTL-293SJ
6434	4822 130 30621	1N4148
6435	4822 130 30621	1N4148
6436	4822 130 30621	1N4148
6437	4822 130 30621	1N4148
6438	4822 130 30621	1N4148
6439	4822 130 30621	1N4148
6440	4822 130 30621	1N4148
6441	4822 130 30621	1N4148
6442	4822 130 30621	1N4148
6443	4822 130 30621	1N4148
6444	4822 130 30621	1N4148
6446	4822 130 30621	1N4148
6447	4822 130 30621	1N4148
6448	4822 130 30621	1N4148
6449	4822 130 30621	1N4148
6450	4822 130 34173	BZX79-B5V6
6451	4822 130 34173	BZX79-B5V6
6452	4822 130 34173	BZX79-B5V6
6453	4822 130 30621	1N4148
6454	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7400	5322 130 42755	BC847C
7401	5322 130 42755	BC847C
7402	5322 130 42755	BC847C
7413	5322 130 42755	BC847C
7414	5322 130 42755	BC847C
7415	5322 130 42755	BC847C
7416	5322 130 42755	BC847C
7417	5322 130 42755	BC847C
7418	5322 130 42756	BC857C
7419	5322 130 42756	BC857C
7421	5322 130 42756	BC857C
7422	5322 130 42755	BC847C
7423	5322 130 42756	BC857C
7425	5322 130 42756	BC857C
7427	5322 130 42756	BC857C
7428	5322 130 42755	BC847C
7429	5322 130 42756	BC857C
7430	5322 130 42755	BC847C
7431	5322 130 42756	BC857C
7432	4822 130 60511	BC847B
7433	5322 130 42755	BC847C
7434	5322 130 42755	BC847C
7435	4822 130 10165	GP1U28XP
7436	4822 209 31508	ST24C01B1
7438	4822 209 15449	74HC4094D
7439	4822 209 15449	74HC4094D
7440	4822 209 15449	74HC4094D
7441	4822 209 15475	TMP87CS71AF-"770S51491"
7445	5322 130 42755	BC847C

Note : Only the parts mentioned in this list are normal service spare parts.


ECO 5 TUNER BOARD
FM-RF
FM-OSC
LW-OSC
MW-OSC
SW-OSC
SW-ANT
SW-RF
AM-IF1
MW-RF
LW-RF
1101
1104
1105
7104
7107
F 400

TUNER BOARD ECO5

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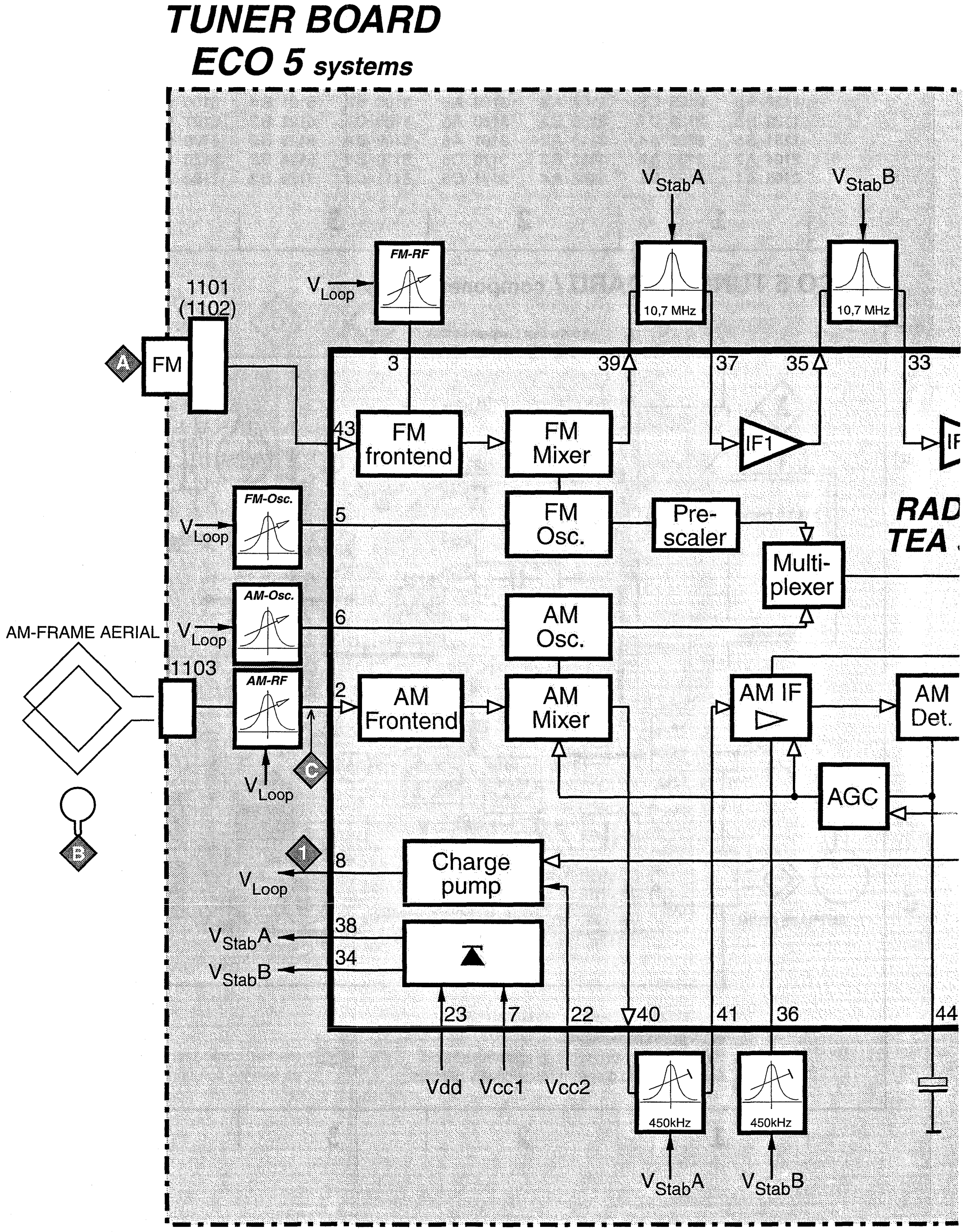
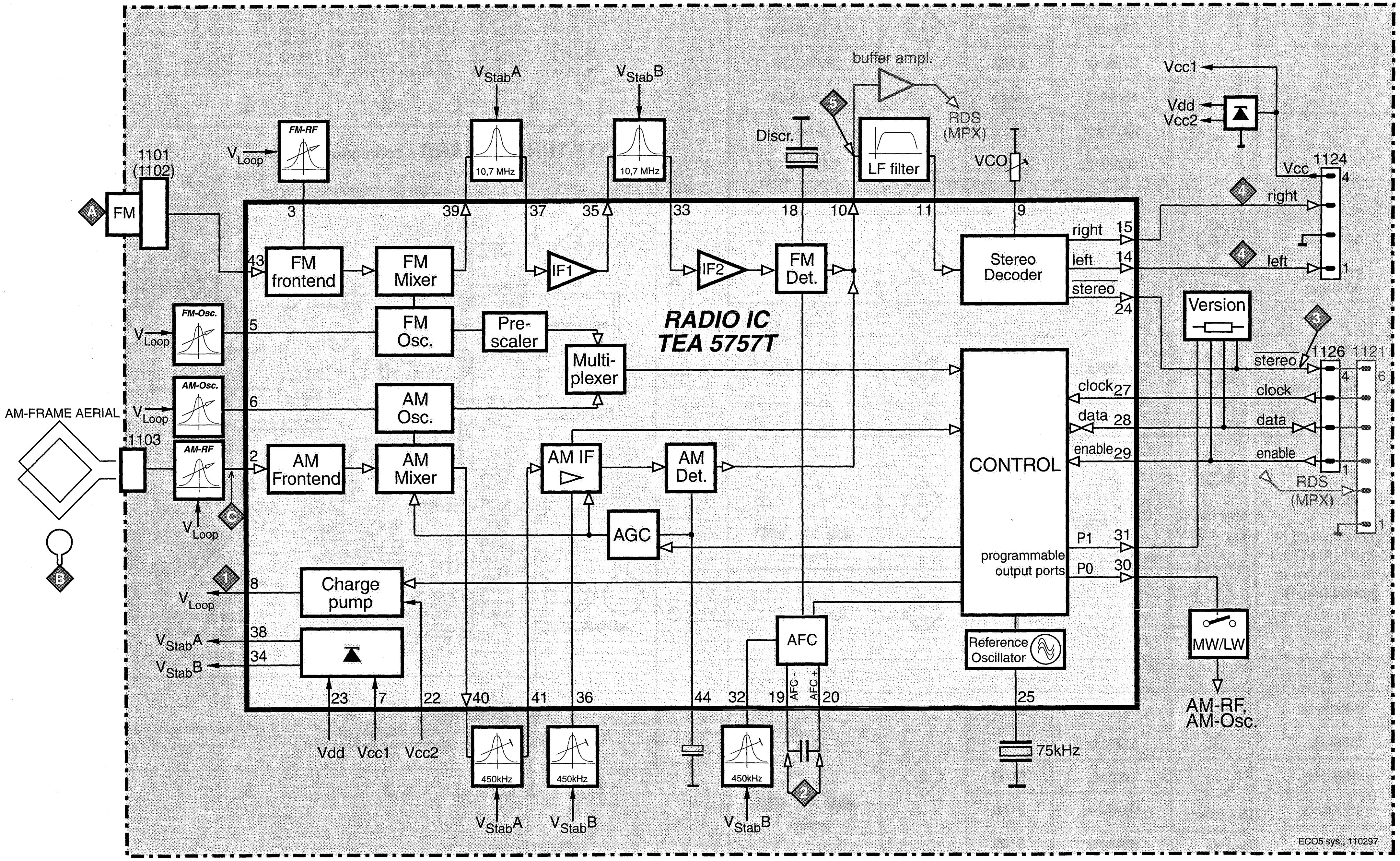
BLOCKDIAGRAM

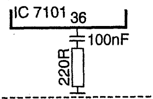
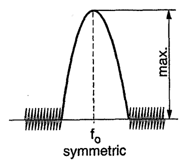
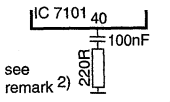
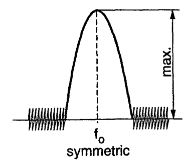

TUNER BOARD
ECO 5 systems
FM
1101
(1102)
V Loop
FM-RF
FM-Osc.
AM-Osc.
AM-RF
AM-FRAME AERIAL
1103
V Stab A
V Stab B
10,7 MHz
3
39
37
35
33
43
5
6
2
8
38
34
23
7
22
40
41
36
44
FM frontend
FM Mixer
FM Osc.
IF1
Pre-scaler
Multi-plexer
AM Osc.
AM Frontend
AM Mixer
AM IF
AM Det.
AGC
Charge pump
Vdd
Vcc1
Vcc2
450kHz
RAD
TEA
A
B
C
1

BLOCKDIAGRAM

TUNER BOARD
ECO 5 systems


buffer ampl.
RDS (MPX)
VStabA
VStabB
FM-RF
VLoop
10,7 MHz
Discr.
LF filter
VCO
Vcc1
Vdd
Vcc2
Vcc
1124
4
right
left
1
1101 (1102)
A
FM
3
39
37
35
33
18
10
11
9
43
FM frontend
FM Mixer
IF1
IF2
FM Det.
Stereo Decoder
right 15
left 14
stereo 24
Version
3
FM-Osc.
5
FM Osc.
Pre-scaler
Multi-plexer
RADIO IC
TEA 5757T
stereo
1126
1121
6
clock 27
clock
data 28
data
enable 29
enable
AM-Osc.
AM-FRAME AERIAL
6
AM Osc.
1103
AM-RF
2
AM Frontend
AM Mixer
AM IF
AM Det.
CONTROL
RDS (MPX)
C
AGC
B
1
8
Charge pump
P1 31
programmable output ports
P0 30
38
34
Reference Oscillator
AFC
MW/LW
AM-RF, AM-Osc.
23
7
22
40
41
36
44
32
19
AFC -
AFC +
20
25
Vdd
Vcc1
Vcc2
450kHz
75kHz
2
ECO5 sys., 110297

TUNER ADJUSTMENT TABLE (ECO5 FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130	◇1	8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123		6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	◇A mod=1kHz Δf=±22.5kHz	108MHz	2155	◇4	MAX
	87.5MHz (65.81MHz)		87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	◇A	98MHz	3142	◇3	152kHz ±1kHz [1]
AM IF						
MW	450kHz connect pin 26 of IC 7101 (AM Osc.) with short wire to ground (pin 4)	◇C Δf=±15kHz V_{RF} = 3mV	 IC 7101 36 100nF 220R	5111	◇4	
			 IC 7101 40 100nF 220R see remark [2]	5112		
AM AFC **MW**		◇C continuous wave V_{RF} = 10mV		5114	◇2	0 ± 2 mV DC
AM RF [3]						
MW [4] FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	◇B	1494kHz	2106	◇4	
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz	Δf = ±30kHz V_{RF} as low as possible	1500kHz	2106		
	560kHz		560kHz	5102		

ECO5, 170996

Use service test program. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

[1] If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

[2] RC network serves for damping the IF-filter while adjusting the other one.

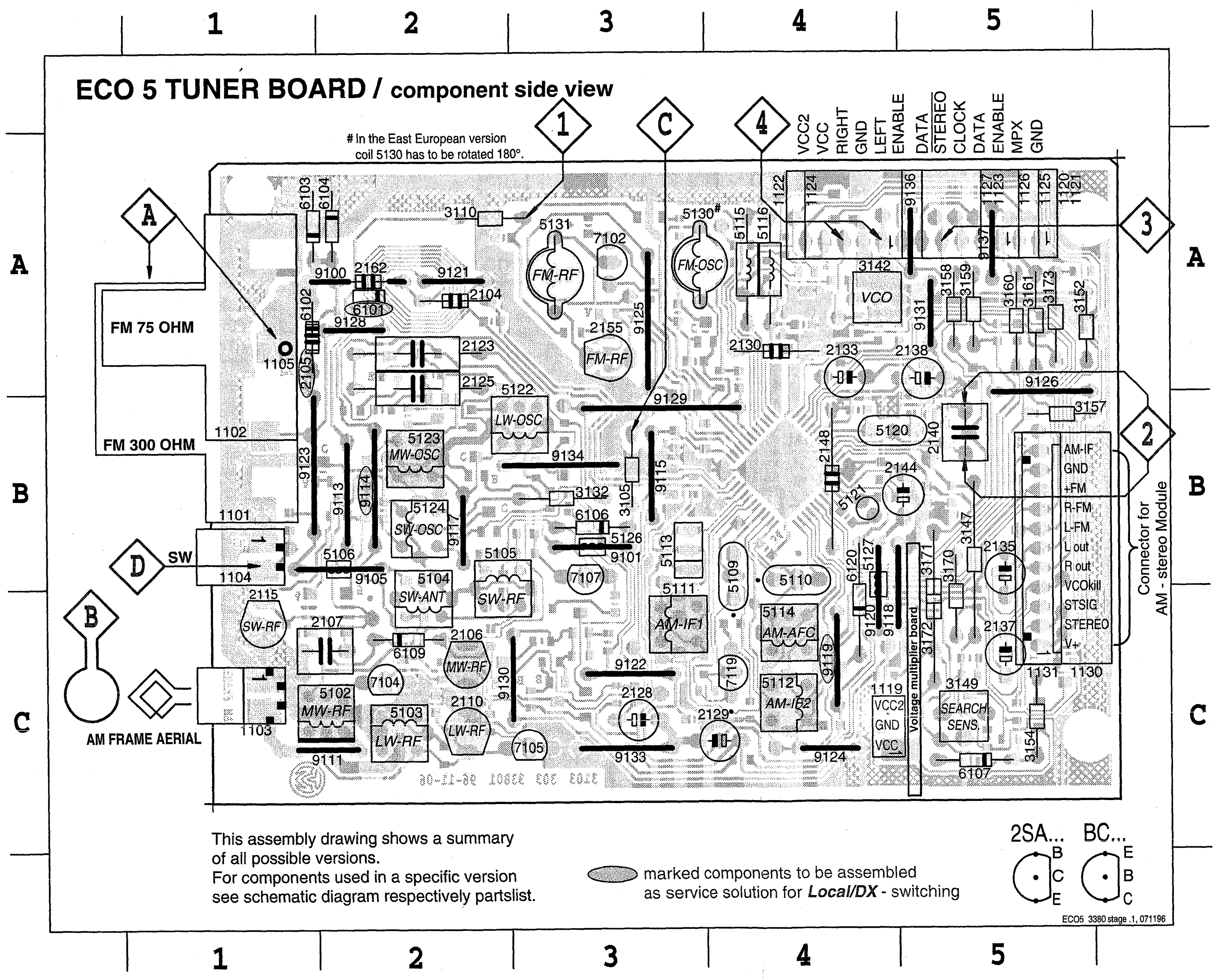
[3] For AM RF adjustments the original frame antenna has to be used !

[4] MW has to be aligned before LW.

↕ Repeat

1101	A1	2106	C2	2137	C5	3147	B5	3172	C5	5112	C4	5130	A3	7104	C2	9118	B4	9130	C3
1102	A1	2107	C2	2138	A5	3149	C5	3173	A5	5113	B3	5131	A3	7105	C3	9119	C4	9131	A5
1103	C1	2110	C2	2140	B5	3152	A5	5102	C2	5114	C4	6101	A2	7107	B3	9120	B4	9133	C3
1104	B1	2115	C1	2144	B5	3154	C5	5103	C2	5115	A4	6102	A1	9100	A2	9121	A2	9134	B3
1105	A1	2123	A2	2148	B4	3157	B5	5104	C2	5116	A4	6103	A1	9101	B3	9122	C3	9136	A5
1119	C5	2125	A2	2155	A3	3158	A5	5105	B2	5120	B4	6104	A2	9105	B2	9123	B1	9137	A5
1120	A5	2128	C3	2162	A2	3159	A5	5106	B2	5121	B4	6106	B3	9111	C2	9124	C4		
1130	B5	2129	C4	3105	B3	3160	A5	5108	C4	5122	B3	6107	C5	9113	B2	9125	A3		
1131	B5	2130	A4	3110	A2	3161	A5	5109	B4	5123	B2	6109	C2	9114	B2	9126	B5		
2104	A2	2133	A4	3132	B3	3170	C5	5110	B4	5124	B2	6120	C4	9115	B3	9128	A2		
2105	A1	2135	B5	3142	A4	3171	C5	5111	C3	5126	B3	7102	A3	9117	B2	9129	B3		

2101	C4
2102	C4
2103	C3
2108	A4
2109	A4
2112	B5
2113	A4
2114	A4
2116	B3
2117	A3
2118	B4

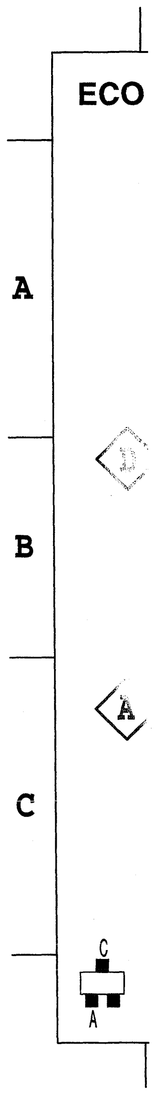


ECO 5 TUNER BOARD / component side view

1
2
3
4
5
A
B
C
# In the East European version coil 5130 has to be rotated 180°.
VCC2
VCC
RIGHT
GND
LEFT
ENABLE
DATA
STEREO
CLOCK
DATA
ENABLE
MPX
GND
FM 75 OHM
FM 300 OHM
SW
AM FRAME AERIAL
FM-RF
FM-OSC
VCO
LW-OSC
MW-OSC
SW-OSC
SW-ANT
SW-RF
MW-RF
LW-RF
AM-IF1
AM-IF2
AM-AFC
SEARCH SENS.
Voltage multiplier board
AM-IF
GND
+FM
R-FM
L-FM
L out
R out
VCOkill
STSIG
STEREO
V+
Connector for AM - stereo Module
2SA...
BC...
B
C
E
ECO5 3380 stage 1, 071196

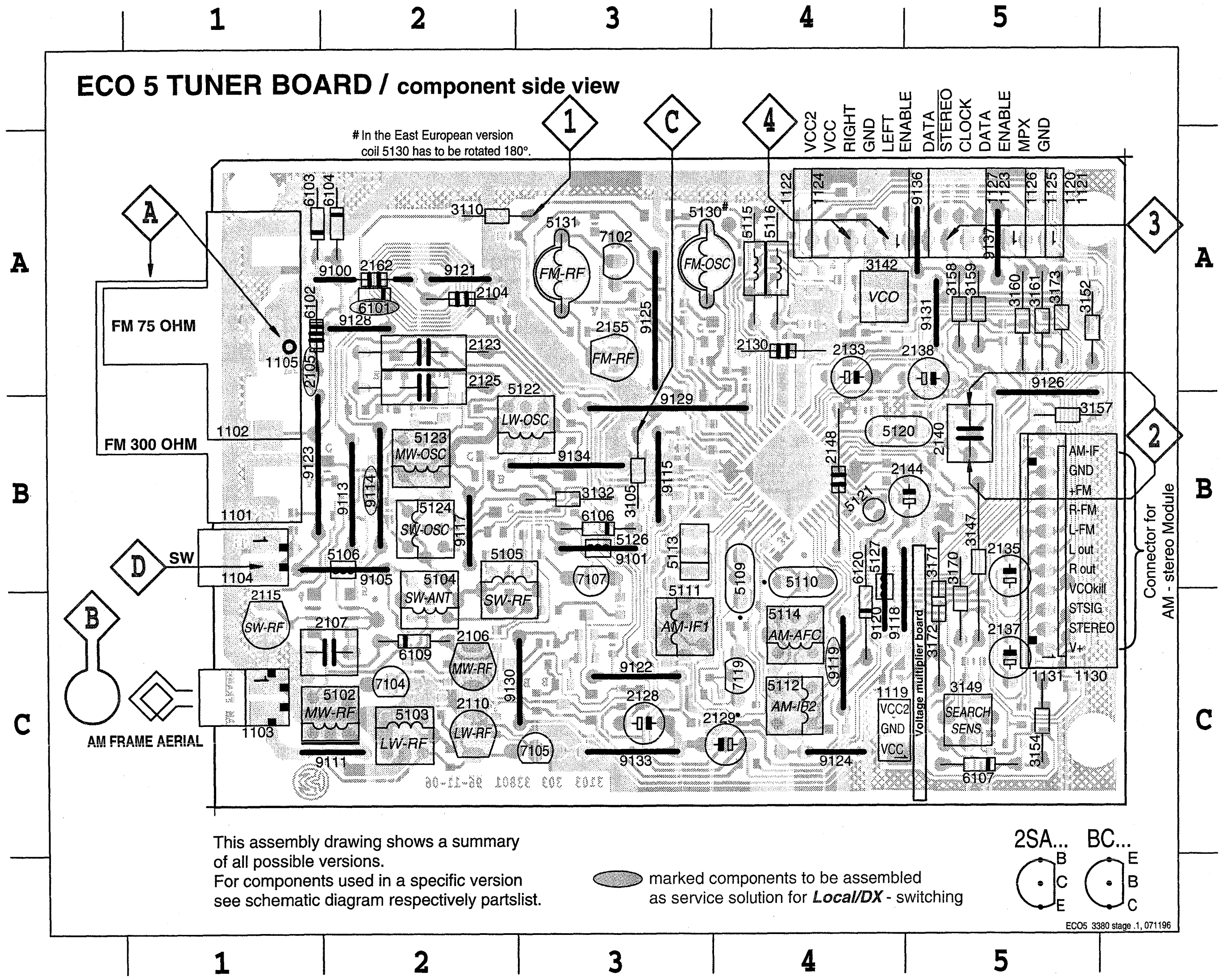
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

marked components to be assembled as service solution for *Local/DX* - switching



1101	A1
1102	A1
1103	C1
1104	B1
1105	A1
1119	C5
1120	A5
1130	B5
1131	B5
2104	A2
2105	A1
2106	C2
2107	C2
2110	C2
2115	C1
2123	A2
2125	A2
2128	C3
2129	C4
2130	A4
2133	A4
2135	B5
2137	C5
2138	A5
2140	B5
2144	B5
2148	B4
2155	A3
2162	A2
3105	B3
3110	A2
3132	B3
3142	A4
3147	B5
3149	C5
3152	A5
3154	C5
3157	B5
3158	A5
3159	A5
3160	A5
3161	A5
3170	C5
3171	C5
3172	C5
3173	A5
5102	C2
5103	C2
5104	C2
5105	B2
5106	B2
5108	C4
5109	B4
5110	B4
5111	C3
5112	C4
5113	B3
5114	C4
5115	A4
5116	A4
5120	B4
5121	B4
5122	B3
5123	B2
5124	B2
5126	B3
5130	A3
5131	A3
6101	A2
6102	A1
6103	A1
6104	A2
6106	B3
6107	C5
6109	C2
6120	C4
7102	A3
7104	C2
7105	C3
7107	B3
9100	A2
9101	B3
9105	B2
9111	C2
9113	B2
9114	B2
9115	B3
9117	B2
9118	B4
9119	C4
9120	B4
9121	A2
9122	C3
9123	B1
9124	C4
9125	A3
9126	B5
9128	A2
9129	B3
9130	C3
9131	A5
9133	C3
9134	B3
9136	A5
9137	A5

ECO 5 TUNER BOARD / component side view


1
2
3
4
5
A
B
C
FM 75 OHM
FM 300 OHM
SW
AM FRAME AERIAL
VCC2
VCC
RIGHT
GND
LEFT
ENABLE
DATA
STEREO
CLOCK
DATA
ENABLE
MPX
GND
AM-IF
GND
+FM
R-FM
L-FM
L out
R out
VCOkill
STSIG
STEREO
V+
Connector for AM - stereo Module
Voltage multiplier board
VCC2
GND
VCC
SEARCH SENS
FM-RF
FM-OSC
VCO
LW-OSC
MW-OSC
SW-OSC
SW-ANT
SW-RF
MW-RF
LW-RF
AM-IF1
AM-IF2
AM-AFC
2SA...
BC...
B
C
E
ECO5 3380 stage .1, 071196

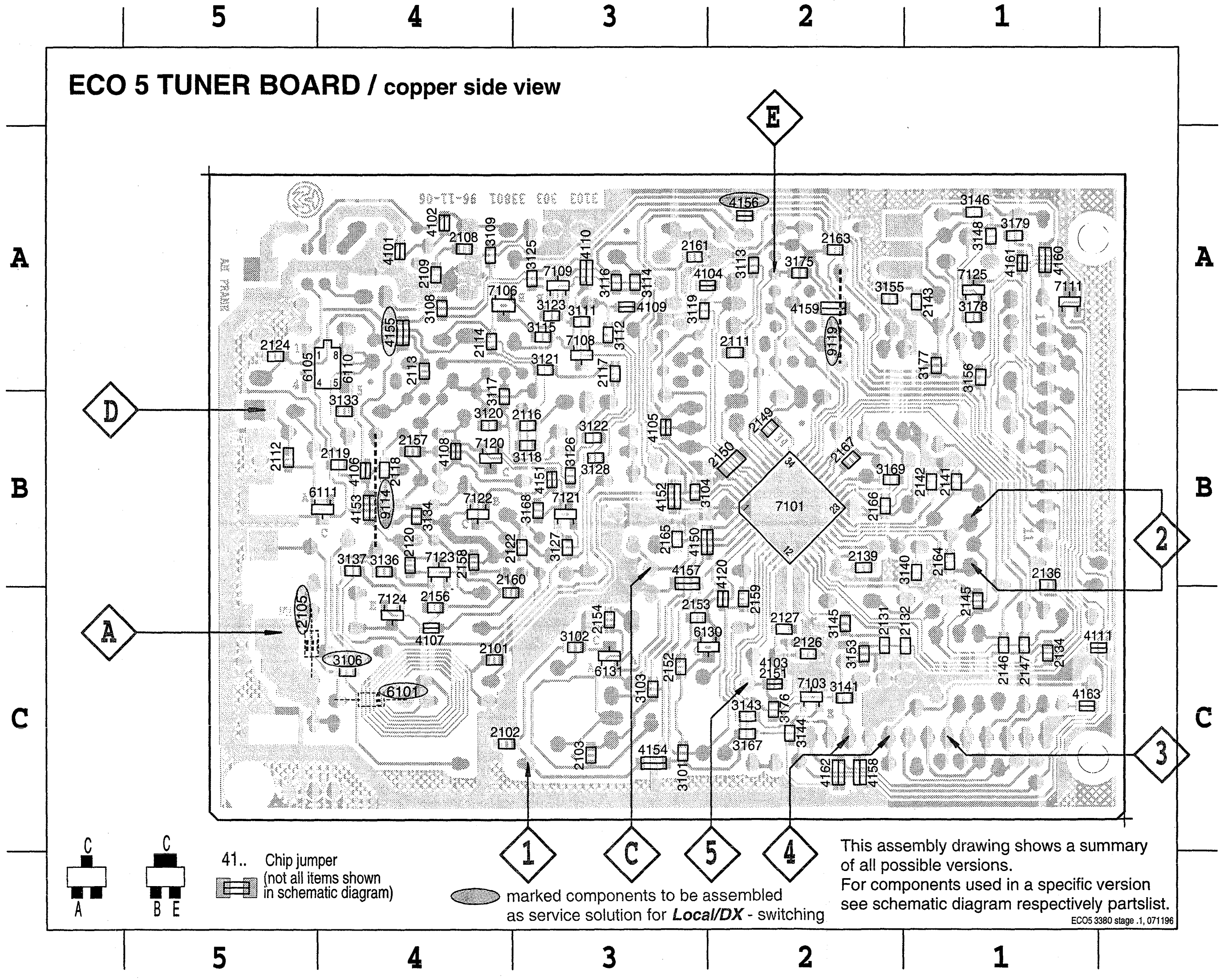
In the East European version coil 5130 has to be rotated 180°.

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

marked components to be assembled as service solution for ***Local/DX*** - switching

2101	C4
2102	C4
2103	C3
2108	A4
2109	A4
2112	B5
2113	A4
2114	A4
2116	B3
2117	A3
2118	B4
2119	B4
2120	B4
2122	B3
2124	A5
2126	C2
2127	C2
2131	C2
2132	C1
2134	C1
2136	B1
2139	B2
2141	B1
2142	B1
2143	A1
2145	C1
2146	C1
2147	C1
2149	B2
2150	B2
2151	C2
2152	C3
2153	C3
2154	C3
2156	C4
2157	B4
2158	B4
2159	C2
2160	C4
2161	A3
2163	A2
2165	B3
2166	B2
2167	B2
3101	C3
3102	C3
3103	C3
3104	B3
3106	C4
3108	A4
3109	A4
3111	A3
3112	A3
3114	A3
3115	A3
3116	A3
3117	B4
3118	B3
3120	B4
3121	A3
3122	B3
3123	A3
3125	A3
3126	B3
3127	B3
3128	B3
3133	B4
3134	B4
3136	B4
3137	B4
3140	B1
3141	C2
3143	C2
3144	C2
3145	C2
3146	A1
3148	A1
3153	C2
3155	A2
3156	A1
3167	C2
3168	B3
3169	B2
3175	A2
3176	C2
3177	A1
4101	A4
4102	A4
4103	C2
4104	A2
4105	B3
4106	B4
4107	C4
4108	B4
4109	A3
4110	A3
4111	C1
4120	C2
4150	B2
4151	B3
4152	B3
4153	B4
4154	C3
4155	A4
4156	A2
4157	B3
4158	C2
4159	A2
4160	A1
6105	A4
6110	A4
6111	B4
6130	C2
6131	C3
7101	B2
7103	C2
7106	A4
7108	A3
7109	A3
7111	A1
7120	B4
7121	B3
7122	B4
7123	B4
7124	C4

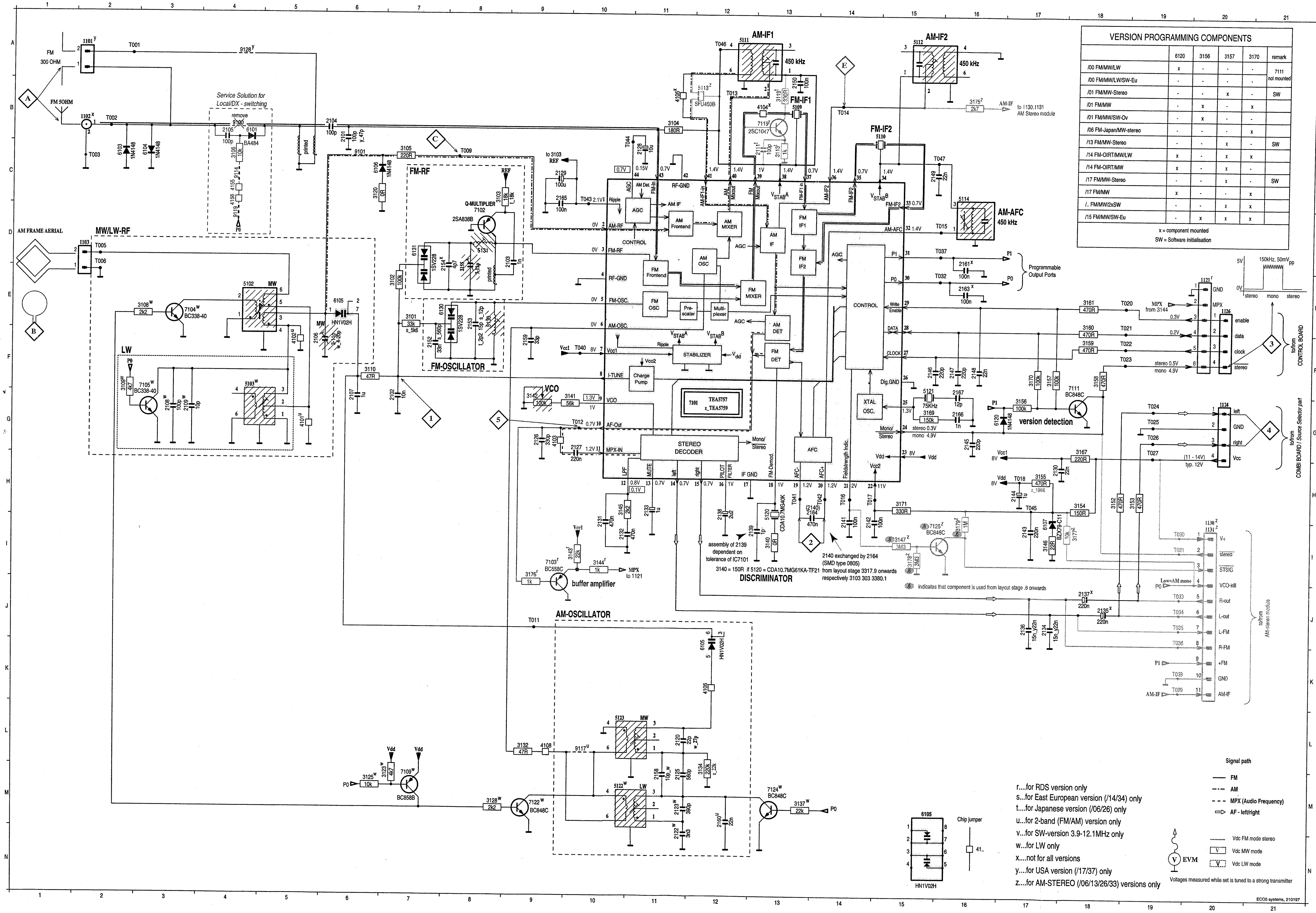
ECO 5 TUNER BOARD / copper side view


5
4
3
2
1
A
B
C
E
D
7101
C
A
B E
41..
Chip jumper
(not all items shown in schematic diagram)
ECO5 3380 stage .1, 071196

marked components to be assembled as service solution for ***Local/DX*** - switching

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

TUNER BOARD ECO5 / Systems


FM 300 OHM
FM 50HM
AM FRAME AERIAL
MW/LW-RF
LW
MW
Service Solution for Local/DX - switching
remove 9100
FM-RF
Q-MULTIPLIER 7102
2SA838B
FM-OSCILLATOR
VCO
AM-IF1
450 kHz
FM-IF1
FM-IF2
AM-IF2
AM-AFC 450 kHz
AGC
AM Frontend
AM MIXER
AM IF
AM OSC
FM Frontend
FM OSC
Pre-scaler
Multi-plexer
FM MIXER
AM DET
FM DET
FM IF1
FM IF2
STABILIZER
Charge Pump
7101 TEA5757 z_TEA5759
STEREO DECODER
CONTROL
XTAL OSC.
AFC
Programmable Output Ports
to/from CONTROL BOARD
to/from COMBI BOARD / Source Selector part
to/from AM-stereo module
version detection
buffer amplifier
DISCRIMINATOR
assembly of 2139 dependent on tolerance of IC7101
3140 = 150R if 5120 = CDA10.7MG61KA-TF21
2140 exchanged by 2164 (SMD type 0805) from layout stage 3317.9 onwards respectively 3103 303 3380.1
indicates that component is used from layout stage .6 onwards
AM-OSCILLATOR
HN1V02H
Chip jumper
150kHz, 50mVpp
stereo mono stereo
ECO5 systems, 210197

VERSION PROGRAMMING COMPONENTS	6120	3156	3157	3170	remark
/00 FM/MW/LW	x	-	-	-	7111 not mounted
/00 FM/MW/LW/SW-Eu	-	-	-	-	
/01 FM/MW-Stereo	-	-	x	-	SW
/01 FM/MW	-	x	-	x	
/01 FM/MW/SW-Ov	-	x	-	-	
/06 FM-Japan/MW-stereo	-	-	-	x	
/13 FM/MW-Stereo	-	-	x	-	SW
/14 FM-OIRT/MW/LW	x	-	x	x	
/14 FM-OIRT/MW	x	-	x	-	
/17 FM/MW-Stereo	-	-	x	-	SW
/17 FM/MW	x	-	-	x	
/.. FM/MW/2xSW	-	-	x	x	
/15 FM/MW/SW-Eu	-	x	x	x	

x = component mounted
SW = Software initialisation

r....for RDS version only
s...for East European version (/14/34) only
t....for Japanese version (/06/26) only
u...for 2-band (FM/AM) version only
v...for SW-version 3.9-12.1MHz only
w...for LW only
x....not for all versions
y....for USA version (/17/37) only
z....for AM-STEREO (/06/13/26/33) versions only

Signal path
— FM
-·- AM
- - - MPX (Audio Frequency)
⇨ AF - left/right

EVM
Vdc FM mode stereo
Vdc MW mode
Vdc LW mode
Voltages measured while set is tuned to a strong transmitter

1101	A 1
1102	B 2
1103	D 2
1121	E20
1124	G20
1126	E20
1130	I20
1131	I20
2101	C 6
2102	G 7
2103	D 9
2104	B 6
2106	F 5
2107	G 6
2108	G 3
2109	G 3
2111	C13
2120	L11
2122	N11
2123	M11
2125	M11
2126	G 9
2127	G10
2128	C11
2129	C 9
2130	H17
2131	I10
2132	I10
2133	H11
2134	J17
2135	J18
2136	J17
2137	J18
2138	H12
2139	I13
2140	H14
2141	H14
2142	H14
2143	I17
2144	H17
2145	G16
2146	F15
2147	F16
2148	F16
2149	C15
2150	B13
2152	F 7
2153	E 8
2154	E 7
2155	D 8
2158	M11
2159	F 9
2160	M12
2161	D16
2163	E16
2164	H14
2165	C 9
2166	G16
2167	F16
3101	E 7
3102	E 7
3103	C 8
3104	B11
3105	C 7
3108	E 3
3109	F 2
3110	F 6
3113	C13
3119	B13
3120	C 6
3123	M 7
3125	M 6
3128	M 8
3132	L 9
3134	M12
3137	M13
3140	I13
3141	G10
3142	G 9
3143	I10
3144	I10
3145	H10
3146	I17
3147	I15
3152	H18
3153	H19
3154	H18
3155	H17
3156	G17
3157	F17
3158	F18
3159	F18
3160	E18
3161	E18
3167	G18
3169	G15
3170	F17
3171	H15
3175	B16
3176	J 9
3177	I18
3178	I15
3179	I16
4101	G 5
4102	F 5
4103	G 9
4104	B13
4105	B11
4106	K12
4108	L 9
5102	E 4
5103	F 4
5109	B13
5110	B14
5111	A13
5112	A15
5113	B12
5114	C16
5120	H13
5121	F15
5122	M11
5123	L11
5130	E 8
5131	D 8
6103	C 2
6104	C 3
6105	K12
6105	E 6
6106	C 6
6107	H17
6120	G16
6130	E 7
6131	D 7
7101	G11
7102	D 8
7103	I 9
7104	E 3
7105	F 2
7109	M 7
7111	F18
7119	B13
7122	M 9
7124	M13
7125	I16
9100	B 4
9101	C 6
9117	L10
9128	A 4

ELECTRICAL PARTSLIST ECO5 TUNER BOARD

MISCELLANEOUS

1101	4822 267 31505	ANTENNA SOCKET, 300Ω
1102	4822 267 10283	ANTENNA SOCKET, COAX IEC 75Ω

CAPACITORS

2101©	5322 122 32531	100pF	5%	50V	
2102©	4822 122 33177	10nF	20%	50V	
2103©	5322 122 34123	1nF	10%	50V	
2104	4822 122 33195	100pF	10%	50V	
2106	4822 125 60101	3-11pF TRIMCAP.			
2107	4822 121 51319	1µF	20%	50V	
2120©	5322 122 32658	22pF	5%	50V	
2125	4822 121 51381	560pF	1%	400V	
2126©	5322 122 31863	330pF	5%	50V	
2127©	4822 122 32927	220nF	10%	63V	
2127©	4822 126 13473	220nF	20%	50V	
2128	4822 124 41579	10µF	20%	50V	
2129	4822 124 41584	100µF	20%	10V	
2130	4822 126 11585	22nF	20%	50V	
2131©	4822 122 33325	470nF	20%	50V	
2131©	4822 126 13482	470nF	20%	16V	
2132©	4822 122 33325	470nF	20%	50V	
2132©	4822 126 13482	470nF	20%	16V	
2133	4822 124 40242	1µF	20%	63V	
2134©	4822 122 33128	15nF	10%	63V	not for USA
2134©	5322 122 32654	22nF	10%	63V	for USA only
2135	4822 124 40746	0,22µF	20%	63V	
2136©	4822 122 33128	15nF	10%	63V	not for USA
2136©	5322 122 32654	22nF	10%	63V	for USA only
2137	4822 124 40746	0,22µF	20%	63V	
2138	4822 124 41576	2,2µF	20%	50V	
2139©	5322 122 32447	1pF	5%	50V	
2141©	4822 126 10002	100nF	20%	50V	
2142©	4822 126 10002	100nF	20%	50V	
2143©	4822 126 13473	220nF	20%	50V	
2144	4822 124 40242	1µF	20%	63V	
2145©	4822 122 33575	220pF	5%	50V	
2146©	4822 122 33575	220pF	5%	50V	
2147©	4822 122 33575	220pF	5%	50V	
2148	4822 126 11585	22nF	20%	50V	
2149©	5322 122 32654	22nF	10%	63V	
2150©	4822 122 31947	100nF	20%	50V	
2152©	4822 122 33342	33nF	10%	63V	not for East Europe
2152©	5322 116 80853	560pF	5%	63V	for East Europe only
2153©	4822 122 32139	12pF	5%	63V	for East Europe only
2153©	5322 122 32481	15pF	5%	50V	not for East Europe
2155	4822 125 60101	3-11pF TRIMCAP.			
2159©	5322 122 32659	33pF	5%	50V	
2160©	5322 122 32654	22nF	10%	63V	
2164©	4822 126 13482	470nF	20%	16V	
2165©	4822 126 10002	100nF	20%	50V	
2166©	5322 122 34123	1nF	10%	50V	
2167©	4822 122 32139	12pF	5%	63V	

RESISTORS

3101©	4822 051 20333	33kΩ	5%	0,1W	not for East Europe
3101©	4822 051 20562	5,6kΩ	5%	0,1W	for East Europe only
3102©	4822 051 20104	100kΩ	5%	0,1W	
3103©	4822 051 20183	18kΩ	5%	0,1W	
3104©	4822 117 11448	180Ω	10%	0,1W	
3105	4822 116 83872	220Ω	5%	0,5W	
3110	4822 116 52195	47Ω	5%	0,5W	
3120©	4822 051 20008	CHIP JUMPER 0805			

RESISTORS

3132	4822 116 52195	47Ω	5%	0,5W	
3134©	4822 051 20224	220kΩ	5%	0,1W	
3140©	4822 051 20008	CHIP JUMPER 0805			5120=CDA10.7MG40K
3140©	4822 117 10353	150Ω	5%	0,1W	5120=CDA10.7MG61KA
3141©	4822 051 20563	56kΩ	5%	0,1W	
3142	4822 100 11163	100kΩ TRIMPOT. LIN.			
3143©	4822 051 20223	22kΩ	5%	0,1W	for RDS version only
3144©	4822 051 10102	1kΩ	5%	0,1W	for RDS version only
3145©	4822 117 11449	2,2kΩ	1%	0,1W	
3146©	4822 051 20229	22Ω	5%	0,1W	
3152	4822 116 83883	470Ω	5%	0,16W	
3153©	4822 051 20471	470Ω	5%	0,1W	
3154	4822 116 83868	150Ω	5%	0,5W	
3155©	4822 051 20471	470Ω	5%	0,1W	
3156©	4822 051 20104	100kΩ	5%	0,1W	for /21/30/33 only
3157	4822 116 52234	100kΩ	5%	0,5W	for East Europe only
3158	4822 116 83883	470Ω	5%	0,16W	
3159	4822 116 83883	470Ω	5%	0,16W	
3160	4822 116 83883	470Ω	5%	0,16W	
3161	4822 116 83883	470Ω	5%	0,16W	
3167©	4822 117 11503	220Ω	5%	0,1W	
3169©	4822 051 20154	150kΩ	5%	0,1W	
3170	4822 116 52234	100kΩ	5%	0,5W	
3171	4822 116 52219	330Ω	5%	0,5W	
3176©	4822 051 10102	1kΩ	5%	0,1W	for RDS version only
4101©	4822 051 20008	CHIP JUMPER 0805			
4102©	4822 051 20008	CHIP JUMPER 0805			
4103©	4822 051 20008	CHIP JUMPER 0805			
4104©	4822 051 20008	CHIP JUMPER 0805			
4105©	4822 051 20008	CHIP JUMPER 0805			
4106©	4822 051 20008	CHIP JUMPER 0805			
4108©	4822 051 20008	CHIP JUMPER 0805			
4111©	4822 051 20008	CHIP JUMPER 0805			
4120©	4822 051 20008	CHIP JUMPER 0805			
4150©	4822 051 10008	CHIP JUMPER 1206			
4152©	4822 051 10008	CHIP JUMPER 1206			
4153©	4822 051 10008	CHIP JUMPER 1206			
4154©	4822 051 10008	CHIP JUMPER 1206			
4157©	4822 051 10008	CHIP JUMPER 1206			
4158©	4822 051 10008	CHIP JUMPER 1206			
4159©	4822 051 10008	CHIP JUMPER 1206			
4162©	4822 051 10008	CHIP JUMPER 1206			for RDS version only

COILS

5102	4822 157 71634	RF-COIL MW
5109	4822 242 70665	CER. FILTER 10,7MHZ
5110	4822 242 70665	CER. FILTER 10,7MHZ
5111	4822 158 60511	AM-IF FILTER 450kHz
5112	4822 157 70302	AM-IF FILTER 450kHz
5114	4822 157 70302	AM-IF FILTER 450kHz (AM AFC)
5120	4822 242 10251	CER. DISCRIMINATOR 10.7MG61KA-TF21
5120	4822 242 82065	CER. DISCRIMINATOR 10.7MG40K
5121	4822 242 10261	QUARTZ 75kHz
5123	4822 157 60517	OSC. COIL MW
5130	4822 156 30947	RF COIL 1,5 TURNS
5131	4822 156 30947	RF COIL 1,5 TURNS

ELECTRICAL PARTSLIST ECO5 TUNER BOARD

DIODES

6103	4822 130 30621	1N4148	
6104	4822 130 30621	1N4148	
6105©	4822 130 83075	HN1V02H	
6106	4822 130 30621	1N4148	
6107	4822 130 34488	BZX79-C11	
6120	4822 130 30621	1N4148	not for /21/30/33
6130©	4822 130 82833	1SV228	
6131©	4822 130 82833	1SV228	

TRANSISTORS

7102	4822 130 60093	2SA838B	
7103©	4822 130 42513	BC558C	for RDS version only
7111©	5322 130 42136	BC848C	

INTEGRATED CIRCUITS

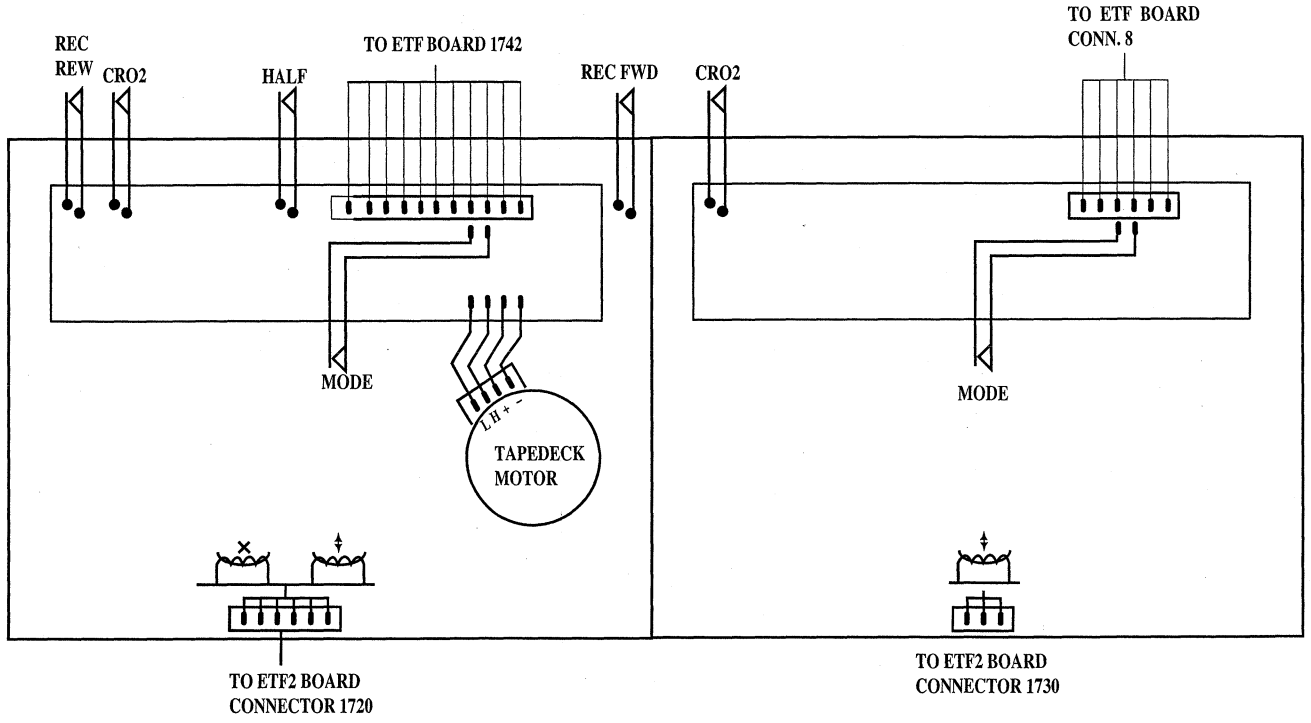
7101©	4822 209 90924	TEA5757H/V1, RADIO IC

ETF2 TAPE MODULE

TABLE OF CONTENTS

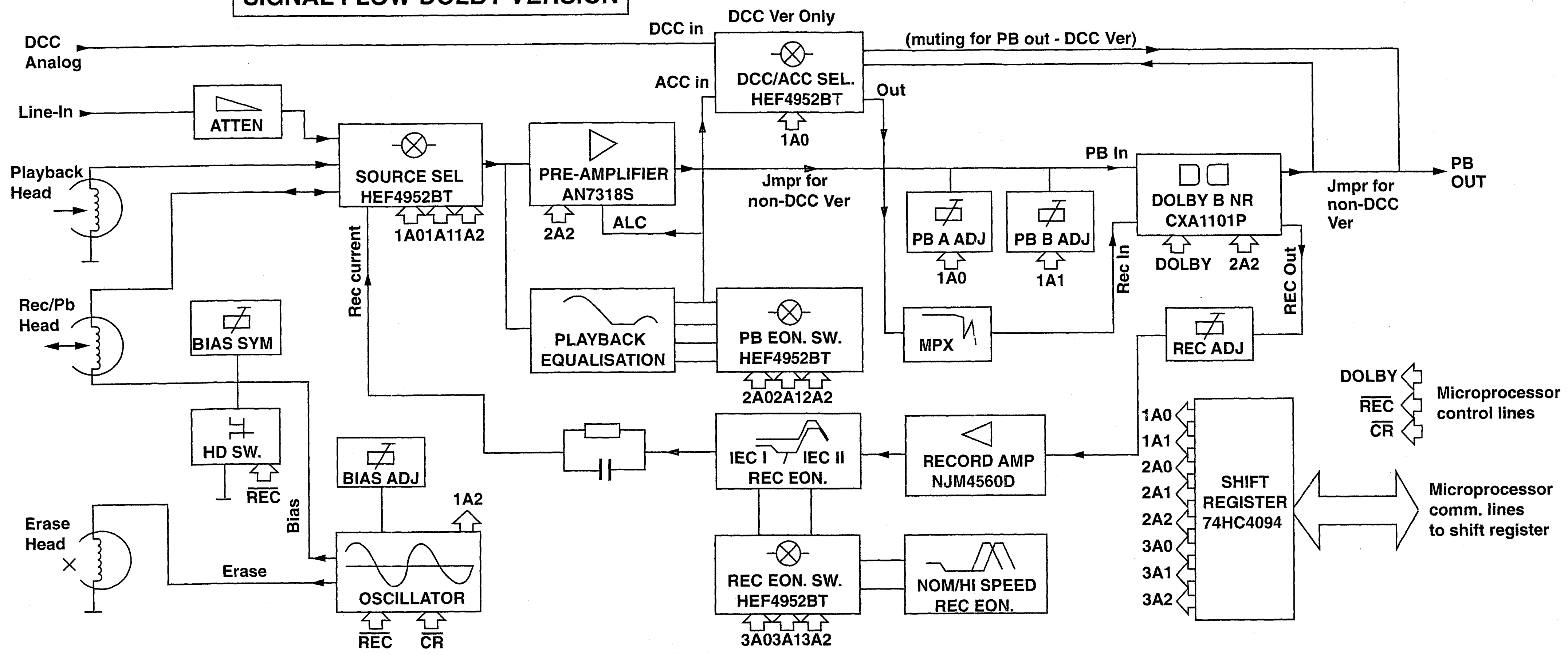
Tape Module Wiring 9-1
Block diagram 9-2
General description & connector assignment 9-3
Tape adjustments 9-5
ETF2 Circuits I & II 9-6
Component & Chip Layout 9-8
Tape Mechanism Electronics 9-10
Exploded views & parts list..................................... 9-10
Electrical parts list... 9-13

Tapedeck wiring (Double deck)

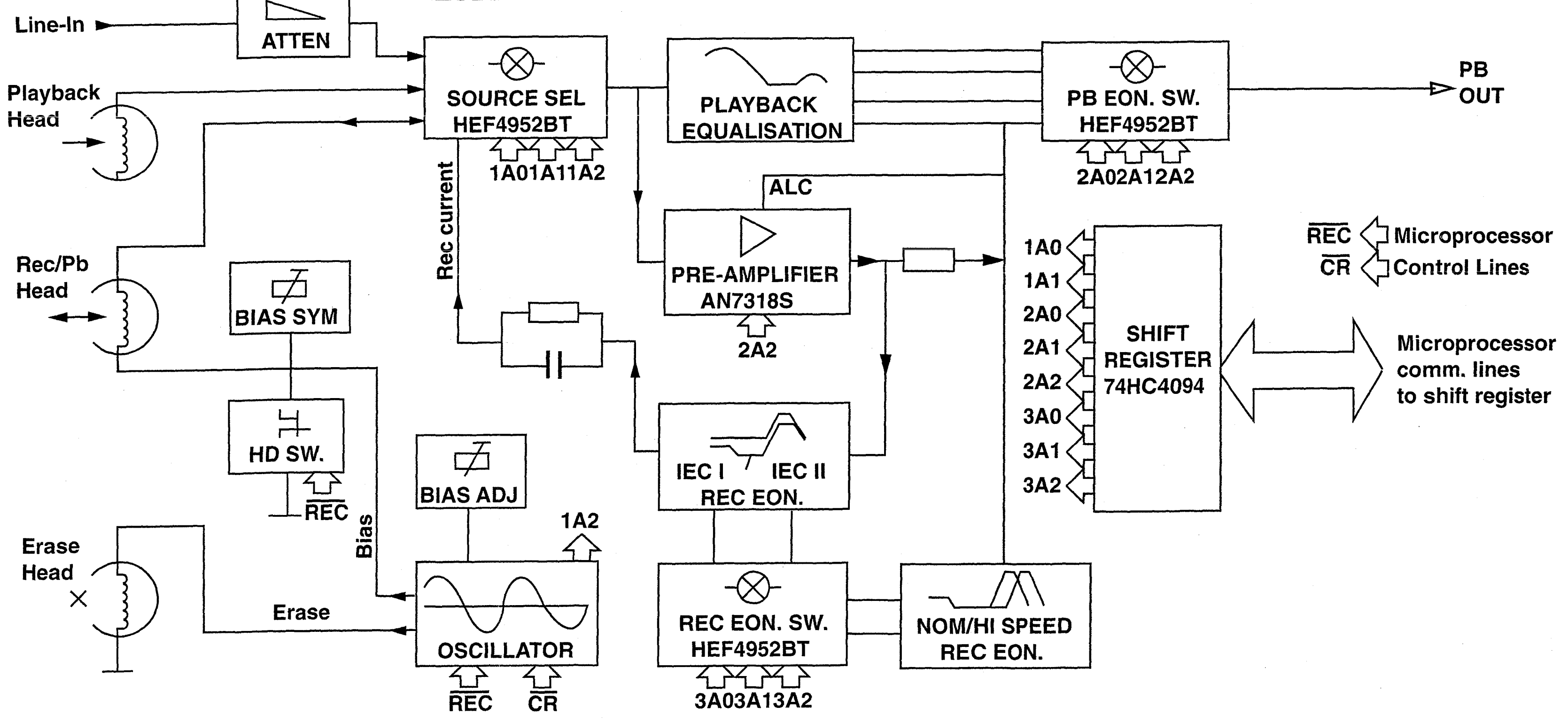

REC
REW
CRO2
HALF
TO ETF BOARD 1742
REC FWD
CRO2
TO ETF BOARD
CONN. 8
MODE
L H + -
TAPEDECK
MOTOR
MODE
TO ETF2 BOARD
CONNECTOR 1720
TO ETF2 BOARD
CONNECTOR 1730

ETF 2 BLOCK DIAGRAM

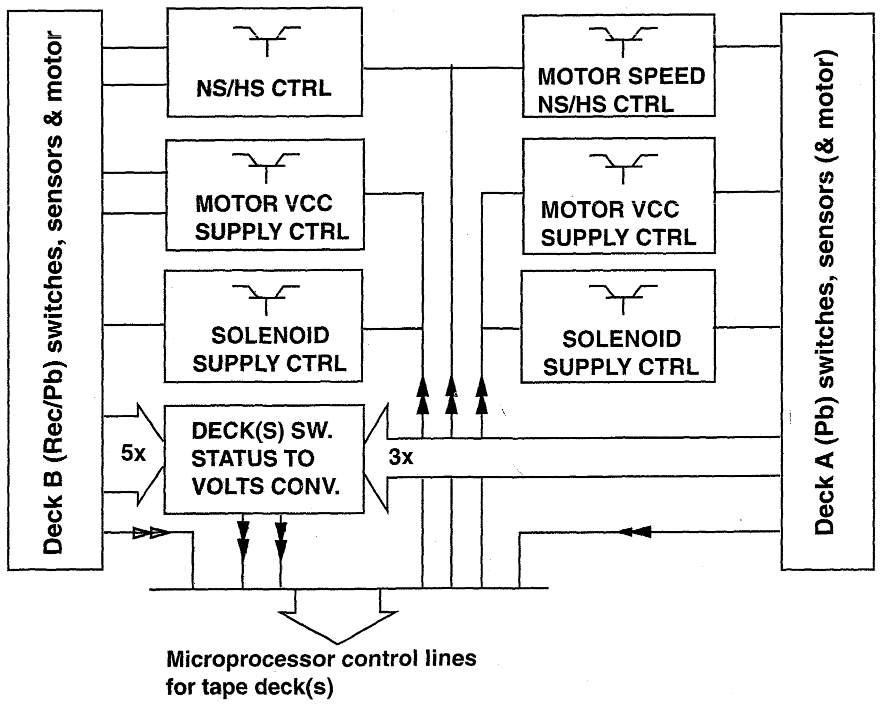
SIGNAL FLOW-DOLBY VERSION


DCC Analog
Line-In
ATTEN
Playback Head
Rec/Pb Head
Erase Head
DCC in
DCC Ver Only
ACC in
DCC/ACC SEL.
HEF4952BT
1A0
Out
(muting for PB out - DCC Ver)
SOURCE SEL
HEF4952BT
1A01A11A2
PRE-AMPLIFIER
AN7318S
2A2
ALC
Jmpr for non-DCC Ver
PB In
PB A ADJ
1A0
PB B ADJ
1A1
DOLBY B NR
CXA1101P
DOLBY
2A2
Jmpr for non-DCC Ver
PB OUT
Rec current
Rec In
REC Out
BIAS SYM
PLAYBACK EQUALISATION
PB EON. SW.
HEF4952BT
2A02A12A2
MPX
REC ADJ
DOLBY
REC
CR
Microprocessor control lines
HD SW.
REC
BIAS ADJ
IEC I
IEC II
REC EON.
RECORD AMP
NJM4560D
1A0
1A1
2A0
2A1
2A2
3A0
3A1
3A2
SHIFT REGISTER
74HC4094
Microprocessor comm. lines to shift register
Bias
1A2
Erase
OSCILLATOR
REC
CR
REC EON. SW.
HEF4952BT
3A03A13A2
NOM/HI SPEED
REC EON.

SIGNAL FLOW-NON DOLBY VERSION


Line-In
ATTEN
Playback Head
Rec/Pb Head
Erase Head
SOURCE SEL
HEF4952BT
1A01A11A2
PLAYBACK EQUALISATION
PB EON. SW.
HEF4952BT
2A02A12A2
PB OUT
ALC
Rec current
PRE-AMPLIFIER
AN7318S
2A2
REC
CR
Microprocessor Control Lines
BIAS SYM
1A0
1A1
2A0
2A1
2A2
3A0
3A1
3A2
SHIFT REGISTER
74HC4094
Microprocessor comm. lines to shift register
HD SW.
REC
BIAS ADJ
IEC I
IEC II
REC EON.
Bias
1A2
Erase
OSCILLATOR
REC
CR
REC EON. SW.
HEF4952BT
3A03A13A2
NOM/HI SPEED
REC EON.

TAPE DECK(S) INTERFACE PART


Deck B (Rec/Pb) switches, sensors & motor
NS/HS CTRL
MOTOR VCC SUPPLY CTRL
SOLENOID SUPPLY CTRL
DECK(S) SW. STATUS TO VOLTS CONV.
5x
3x
MOTOR SPEED NS/HS CTRL
MOTOR VCC SUPPLY CTRL
SOLENOID SUPPLY CTRL
Deck A (Pb) switches, sensors (& motor)
Microprocessor control lines for tape deck(s)

GENERAL DESCRIPTION

FEATURES

The ETF-2 is a family of logic controlled, electronically switched tape function modules. Each module comprises a logic controlled tape deck with attached pcb housing the tape pre-amplifier, recording and switching circuitry, and tape deck interface circuitry.

The following features are available as options:
single / double tape-deck applications
auto-reverse / single way deck options
single / double motor options for double deck
IEC I & IEC II tape types auto selection for playback & recording
Dolby B type Noise Reduction
line-in recording with pilot suppression
tape dubbing at normal & high speed (for double deck applications)
automatic recording level control
software controlled full auto reverse permutations
opto-reflector disc for counter pulses & end-of-tape (EOT) auto-stop
input for DCC deck analog playpack output

NOTATIONS & ABBREVIATIONS USED IN THIS DOCUMENT

Gnd x	Ground x
S/A	Sub-assy
FE	Ferro (IEC type I)
CR	Chrome (IEC type II)
NR	Noise Reduction
PB	Playback
REC	Record
NSD	Normal speed dubbing
HSD	High speed dubbing
DD	Double Deck
SD	Single Deck
SM	Single Motor
DM	Double Motor
ND	Non Dolby
DB	Dolby B

PC board variations	**ND/SD**	**ND/DD/FF**	**DB/DD/FR**	**DB/DD/FF**
12NCs (3139 118 ...)	... 85990	... 88910	... 88750	... 89960
Deck configuration	Single	Double	Double	Double
Motor configuration	Single	Single	Single	Single
Auto Fe/Cr02 selection	Yes	Yes	Yes	Yes
Dolby B	No	No	Yes	Yes
19kHz suppression	No	No	Yes	Yes
High speed dubbing	No	Yes	Yes	Yes
Audio I/P for DCC sets	No	No	No	No

Note: ND - Non Dolby, DB - Dolby B
SD - Single Deck, DD - Double Deck
FF - Playback + Rec/Playback
FR - Playback + Auto-reverse Rec/Playback

CONNECTORS ASSIGNMENTS:

CONNECTOR 1701 — AF SIGNAL & SUPPLY CONNECTIONS

○	1	-CMOS	Negative d.c. supply (-9V) for CMOS ICs
○	2	TAPE-L	Playback output left
○	3	TAPE-R	Playback output right
○	4	+12V	D.C. supply (+12V) for AF electronics
○	5	GND A	AF Ground
○	6	REC-L	Record input left
○	7	REC-R	Record input right

CONNECTOR 1702 — CONTROL LINES FOR AF ELECTRON ***(For NON-Dolby versions only)***

○	1	STROBE	HEF4094BT shift register Strobe line	
○	2	DATA	HEF4094BT shift register Data line	
○	3	CLK	HEF4094BT shift register Clock line	
○	4	GND P	Control & Oscillator Ground	
○	5	REC'	Record on/off control	(+5V=Pb; 0V=Rec)
○	6	CRO2'	CrO2 tape recording control	(+5V=Fe; 0V=Cr)

CONNECTOR 1705 — DCC DECK CONNECTORS ***(For versions with inputs for DCC Analog Playback)***

○	1	ACC L	DCC Deck analog playback left
○	2	GND A	AF Ground
○	3	ACC R	DCC Deck analog playback right

CONNECTOR 1706 — CONTROL LINES FOR AS ELECTRON ***(For versions with Dolby only)***

○	1	STROBE	HEF4094BT shift register Strobe line	
○	2	DATA	HEF4094BT shift register Data line	
○	3	CLK	HEF4094BT shift register Clock line	
○	4	GND P	Control & Oscillator Ground	
○	5	REC'	Record on/off control	(+5V=Pb; 0V=Rec)
○	6	CRO2'	CrO2 tape recording control	(+5V=Fe; 0V=Cr)
○	7	DOLBY'	Dolby NR on/off control (option)	(+5V=off; 0V=On)

CONNECTOR 1711 — BIAS CURRENT SENSO ***(For Testing purpose only)***

○	1	BIAS L+	Bias current test connector - left channel
○	2	BIAS L-	Bias current test connector - left channel
○	3	BIAS R+	Bias current test connector - right channel
○	4	BIAS R-	Bias current test connector - right channel

CONNECTOR 1720 — DECK B HEADS CONNECTON ***(JQ top-type)***

○	1	B R/P HD L+	R/P Head left channel positive
○	2	B R/P HD L-	R/P Head left channel negative
○	3	B R/P HD R+	R/P Head right channel positive
○	4	B R/P HD R-	R/P Head right channel negative
○	5	ERASE HEAD	Erase Head
○	6	GND P	Erase Head ground

CONNECTOR 1730 DECK A HEAD CONNECTIONS ***(For Double Deck versions only)***

○	1	A PB HD R+	Pb Head right channel positive
○	2	GND A	Pb Head return ground shield
○	3	A PB HD L+	Pb Head left channel positive

5.2 TAPE DECK INTERFACES

CONNECTOR 1703 MOTOR SUPPLY LINES ***(PH side-type)***

○	1	+MOTOR	D.C. supply (+12V) for tape deck motor & solenoid
○	2	GND P	Motor Ground

CONNECTOR 1704 CONTROL LINES FOR TAPE DECK OPERATE ***(PH side-type)***
(For single Deck versions only)

○	1	GND	Ground for deck sensing switches network (provision)
○	2	+5V	D.C. supply (+5V) for deck status ADC network (referenced to micro-p)
○	3	AD1	Deck B sensing switches output voltage
○	4	EOT B	Deck B EOT/counter pulse
○	5	SOLB/MOTB*	Deck B motor/solenoid control (tri-state; see table below)
○	6	AD2	Deck A sensing switches output voltage

CONNECTOR 1707 CONTROL LINES FOR TAPE DECK OPERATE ***(PH side-type)***
(For Double Deck versions only)

○	1	GND	Ground for deck sensing switches network (provision)
○	2	+5V	D.C. supply (+5V) for deck status ADC network (referenced to micro-p)
○	3	AD1	Deck B sensing switches output voltage
○	4	EOT B	Deck B EOT/counter pulse
○	5	SOLB/MOTB*	Deck B motor/solenoid control (tri-state; see table below)
○	6	AD2	Deck A sensing switches output voltage
○	7	EOT A	Deck A EOT/counter pulse
○	8	SOLA/MOTA*	Deck A motor/solenoid control (tri-state; see table)
○	9	AD3	Deck A sensing switches output voltage
○	10	NS/HS	Normal/high speed toggle (+5V=HS; 0V=NS)

* motor/solenoid tristate ctrl lines

	mot	sol
0V	on	on
Hi-Z	on	off
5V	off	off

CONNECTOR 1741 DECK B CONTROL INTERFACE
(For Single Deck versions only)

○	1	GND	Deck/Motor ground
○	2	MODE	Mode switch (head engagement)
○	3	Vcc	Deck/Motor supply
○	4	SOL B	Solenoid supply
○	5	PHOTO B	Photo sensor output (tape movement indication)
○	6	CrO2	Chrome tape detection switch
○	7	HALF	Half switch (cassette present detection, provision only)
○	8	REC FWD	Record tab protection status switch (forward)
○	9	REC RVS	Record tab protection status switch (reverse)

CONNECTOR 1742 DECK B CONTROL INTERFACE
(For Double Deck versions only)

○	1	H	H pin for motor
○	2	L	L pin for motor
○	3	GND	Deck/Motor ground
○	4	MODE	Mode switch (head engagement)
○	5	Vcc	Deck/Motor supply
○	6	SOL B	Solenoid supply
○	7	PHOTO B	Photo sensor output (tape movement indication)
○	8	CrO2	Chrome tape detection switch
○	9	HALF	Half switch (cassette present detection, provision only)
○	10	REC FWD	Record tab protection status switch (forward)
○	11	REC RVS	Record tab protection status switch (reverse)

CONNECTOR 1743 DECK A CONTROL INTERFAC ***(XH wire-type on dip-mate item 8)***
(For Double Deck/Single Motor versions only)

○	1	HALF	Half switch (cassette present detection, provision only)
○	2	CrO2	Chrome tape detection switch
○	3	PHOTO A	Photo sensor output (tape movement indication)
○	4	SOL A	Solenoid supply
○	5	Vcc	Deck/Motor supply
○	6	MODE	Mode switch (head engagement)
○	7	GND	Deck/Motor ground

CONNECTOR 1744 DECK A CONTROL INTERFAC ***(XH wire-type on dip-mate item 8 & 9)***
(For Double Deck/Double Motor versions only)

○	1	HALF	Half switch (cassette present detection, provisiion only)
○	2	CrO2	Chrome tape detection switch
○	3	PHOTO A	Photo sensor output (tape movement indication)
○	4	SOL A	Solenoid supply
○	5	Vcc	Deck/Motor supply
○	6	MODE	Mode switch (head engagement)
○	7	GND	Deck/Motor ground

○	1	L	L pin for motor
○	2	H	H pin for motor

SUPPLY	**DESCRIPTION**	**VOLTAGE**
+12V	d.c. supply for AF electronics	+12V
+CMOS	d.c. supply for CMOS ICs	-9V
+MOTOR	d.c. supply for tape deck motor and solenoid	+12V
+5V	d.c. supply for deck status ADC network	+5V

General

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST with	ADJUST to
ADJUST MOTOR SPEED						
HIGH SPEED	SBC420 (4822 397 30071) 3150Hz	DUBBING	10 or 11 LEFT RIGHT	frequency counter	3682	5040Hz±0.5%
NORMAL		PLAY			3684	3150Hz±0.5%
CHECK WOW & FLUTTER (DECK1 AND DECK2)						
WOW FLUTTER	SBC420 (4822 397 30071) 3150Hz	PLAY	10 or 11 LEFT RIGHT	W&F-meter	check only	≤0.6 % unwtd.
ADJUST AZIMUTH (DECK1 AND DECK2)						
NORM. DIRECTION	SBC420 (4822 397 30071) 10kHz	PLAY FWD	10 or 11 LEFT RIGHT	mV-meter	left hand screw	max. output level & left=right
REV. DIRECTION		PLAY REV			right hand screw	

Playback

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST with	ADJUST to
ADJUST DOLBY PLAYBACK LEVEL						
DECK1	DOLBY REF. (4822 397 30271) 200nWb/m	PLAY	10 or 11 LEFT RIGHT	mV-meter	3641(L), 3642(R)	535mV ±0.5dB
DECK2					3635(L), 3636(R)	
CHECK PLAYBACK FREQUENCY RESPONSE (DECK1 AND DECK2)						
PB FREQU. RESP.	SBC420 (4822 397 30071)	PLAY	10 or 11 LEFT RIGHT	mV-meter	mV-meter	limits see fig.1

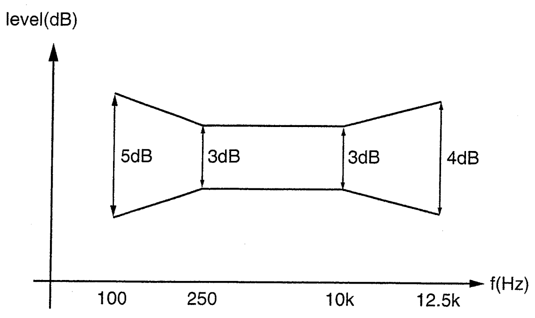


fig. 1

Recording

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST with	ADJUST to
PRE-ADJUST BIAS AND BIAS-SYMMETRY						
CrO_2	CrO_2	RECORD	12 or 13 LEFT RIGHT	mV-meter	3773 & 3785	110mV & left=right
FERRO	FERRO	RECORD			check only	71mV ±0.5dB
CHECK OVERALL FREQUENCY RESPONSE AND DISTORTION						
37mV at AUX-IN 100Hz,250Hz,1kHz 10kHz,12.5kHz	CrO_2	RECORD				
	RECORDED CASSETTE	PLAY	10 or 11 LEFT RIGHT	mV-meter	check only	limits see fig.2
100mV at AUX-IN, 1kHz	CrO_2	RECORD				
	RECORDED CASSETTE	PLAY	10 or 11 LEFT RIGHT	THD-meter	check only	≤3%
Remark: If high frequencies are not within limits, decrease bias and remeasure. If distortion is too high increase bias and remeasure.						
ADJUST DOLBY RECORD LEVEL						
AUX-IN	CrO_2	RECORD	10 or 11 LEFT RIGHT	mV-meter	LF-generator	330Hz 170mV
	CrO_2	RECORD	12 or 13 LEFT RIGHT	mV-meter	3655 & 3556	5mV [1]
[1] Remark: Use low pass filter to attenuate the bias component, or short-circuit base of 7783 to ground.						
RECORD LEVEL CHECK						
	RECORDED CASSETTE	PLAY	10 or 11 LEFT RIGHT	mV-meter	check only	330Hz 170mV ±0.5dB
Remark: If measured value is out of limit, re-adjust record level and remeasure.						

Note : The adjustment and check table are for all options/variants. For your exact application , please refer to the Options/Variants Table.

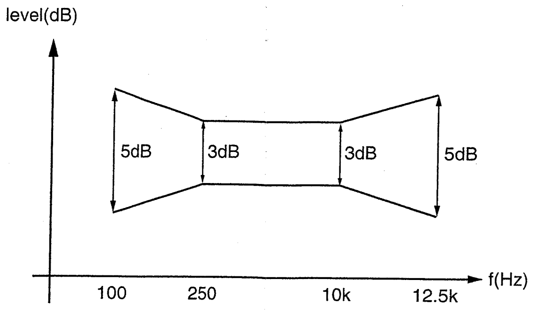
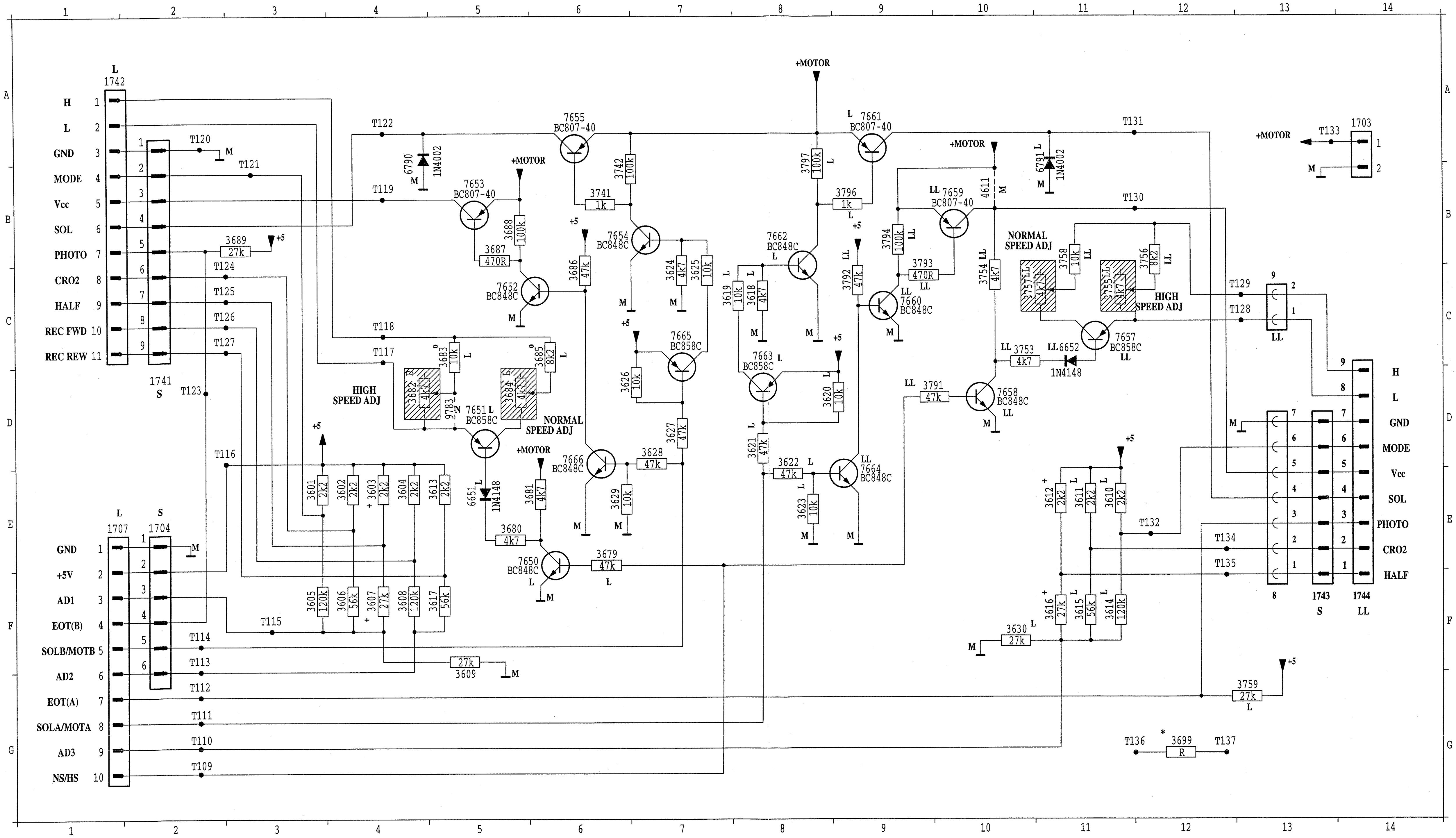


fig. 2

ETF2 CIRCUIT I


L
1742
H 1
L 2
GND 3
MODE 4
Vcc 5
SOL 6
PHOTO 7
CRO2 8
HALF 9
REC FWD 10
REC REW 11
1741
S
T120
M
T121
T122
T119
T124
T125
T126
T127
T118
T117
T123
T116
T115
T114
T113
T112
T111
T110
T109
3689
27k
+5
6790
1N4002
M
7653
BC807-40
+MOTOR
3688
100k
3687
470R
7652
BC848C
M
7655
BC807-40
3742
100k
3741
1k
+5
7654
BC848C
3686
4k7
3624
4k7
3625
10k
M
M
+5
7665
BC858C
3626
10k
3627
47k
3628
47k
7666
BC848C
3629
10k
M
M
+MOTOR
3681
4k7
3680
4k7
7650
BC848C
L
M
3679
47k
L
3683
10k
3685
8k2
3682
4k7
3684
4k7
9783
N
7651 L
BC858C
HIGH
SPEED ADJ
NORMAL
SPEED ADJ
6651
1N4148
+5
3601
2k2
3602
2k2
3603
2k2
3604
2k2
3613
2k2
3605
120k
3606
56k
3607
27k
3608
120k
3617
56k
27k
3609
M
L
1707
S
1704
GND 1
+5V 2
AD1 3
EOT(B) 4
SOLB/MOTB 5
AD2 6
EOT(A) 7
SOLA/MOTA 8
AD3 9
NS/HS 10
+MOTOR
L 7661
BC807-40
3797
100k
3796
1k
7662
BC848C
3619
10k
3618
4k7
M
M
+5
7663
BC858C
3620
10k
3621
47k
3622
47k
7664
BC848C
3623
10k
M
M
+5
3792
47k
3794
100k
7660
BC848C
M
LL 7659
BC807-40
3793
470R
+MOTOR
4611
M
3754
4k7
6791
1N4002
M
T131
T130
NORMAL
SPEED ADJ
3758
10k
3757
4k7
3755
4k7
3756
8k2
HIGH
SPEED ADJ
7657
BC858C
3753
4k7
6652
1N4148
3791
47k
7658
BC848C
M
+MOTOR
T133
1703
1
2
M
T129
T128
9
LL
2
1
+5
3612
2k2
3611
2k2
3610
2k2
T132
T134
T135
3616
27k
3615
56k
3614
120k
3630
27k
M
M
8
1743
S
1744
LL
H
L
GND
MODE
Vcc
SOL
PHOTO
CRO2
HALF
3759
27k
+5
T136
3699
R
T137
1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G

1703	A14
1704	E 2
1707	E 2
1741	D 2
1742	A 2
3601	E 3
3602	E 4
3603	E 4
3604	E 4
3605	F 3
3606	F 4
3607	F 4
3608	F 4
3610	E11
3611	E11
3612	E11
3613	E 5
3614	F11
3615	F11
3616	F11
3617	F 5
3618	C 8
3619	C 7
3620	D 8
3621	D 8
3622	D 8
3623	E 8
3624	C 7
3625	C 7
3626	D 6
3627	D 7
3628	D 7
3629	E 6
3679	E 6
3680	E 5
3681	E 6
3682	D 4
3683	C 5
3684	D 5
3685	C 6
3686	C 6
3687	B 5
3688	B 5
3689	B 3
3699	G12
3741	B 6
3742	B 6
3753	C10
3754	C10
3755	C11
3756	B12
3757	C10
3758	B11
3759	G13
3791	D 9
3792	C 9
3793	C 9
3794	B 9
3796	B 9
3797	A 8
4611	B10
6651	E 5
6652	C11
6790	A 4
6791	A11
7650	E 6
7651	D 5
7652	C 5
7653	B 5
7654	B 6
7655	A 6
7657	C11
7658	D10
7659	B10
7660	C 9
7661	A 9
7662	B 8
7663	C 8
7664	E 9
7665	C 7
7666	D 6
8	F13
9	C13
9783	D 5

T109	G 2
T110	G 2
T111	G 2
T112	G 2
T113	F 2
T114	F 2
T115	F 3
T116	D 2
T117	C 4
T118	C 4
T119	B 4
T120	A 2
T121	A 3
T122	A 4
T123	D 2
T124	B 2
T125	C 2
T126	C 2
T127	C 2
T128	C13
T129	C13
T130	B11
T131	A11
T132	E12
T133	A13
T134	E12
T135	E12
T136	G11
T137	G12

S Required for sets with Single-Deck only
N Required for sets with Non-Dolby/Double-Deck only
D Required for sets with Dolby/Double-Deck only
L Required for sets with Double-Deck only
M Required for sets with Double-Deck/Single-Motor only
LL Required for sets with Double-Deck/Double-Motor only
+ For provision only

* For Variants detection during PCB testing :

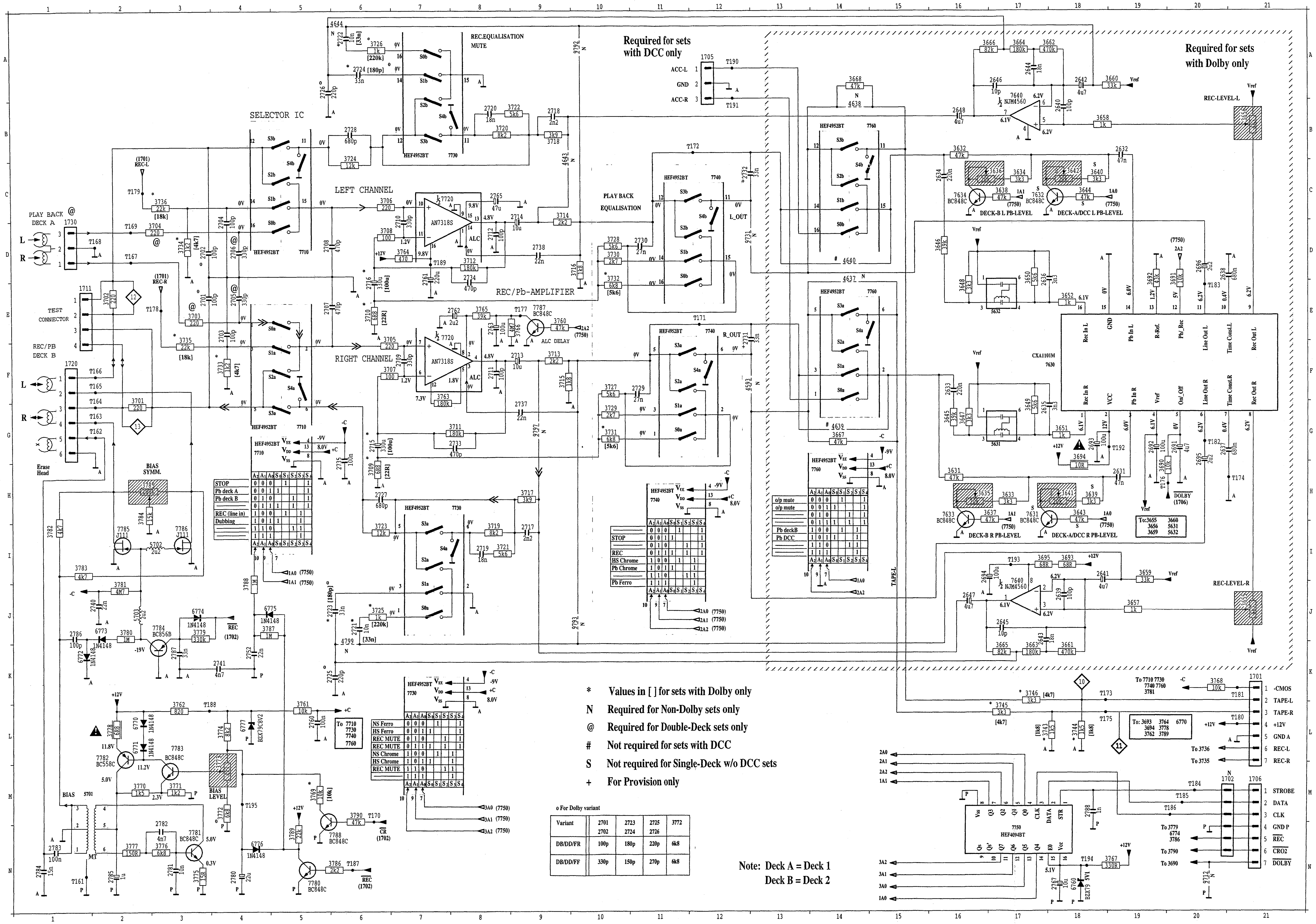
Values for Resistor 3699

1	ND/SD	1k
2	DB/SD	2k2
3	ND/DD/FR	3k3
4	DB/DD/FR	5k6
5	DB/DD/RR	5k6
6	DB/DD/DM	6k8

o For Dolby variant,

3683	DB/DD/FR	8k2
	DB/DD/FF	6k8
3685	DB/DD/FR	10k

ETF2 CIRCUIT II


SELECTOR IC
LEFT CHANNEL
RIGHT CHANNEL
REC/Pb-AMPLIFIER
REC.EQUALISATION MUTE
PLAY BACK EQUALISATION
Required for sets with DCC only
Required for sets with Dolby only
PLAY BACK DECK A
REC/PB DECK B
TEST CONNECTOR
Erase Head
BIAS SYMM.
BIAS LEVEL
AN7318S
HEF4952BT
CXA1101M
NJM4560
HEF4094BT
DECK-B L PB-LEVEL
DECK-A/DCC L PB-LEVEL
DECK-B R PB-LEVEL
DECK-A/DCC R PB-LEVEL
REC-LEVEL-L
REC-LEVEL-R
TAPE-L
-CMOS
TAPE-L
TAPE-R
+12V
GND A
REC-L
REC-R
STROBE
DATA
CLK
GND P
REC
CRO2
DOLBY

* Values in [ ] for sets with Dolby only

N Required for Non-Dolby sets only

@ Required for Double-Deck sets only

# Not required for sets with DCC

S Not required for Single-Deck w/o DCC sets

+ For Provision only

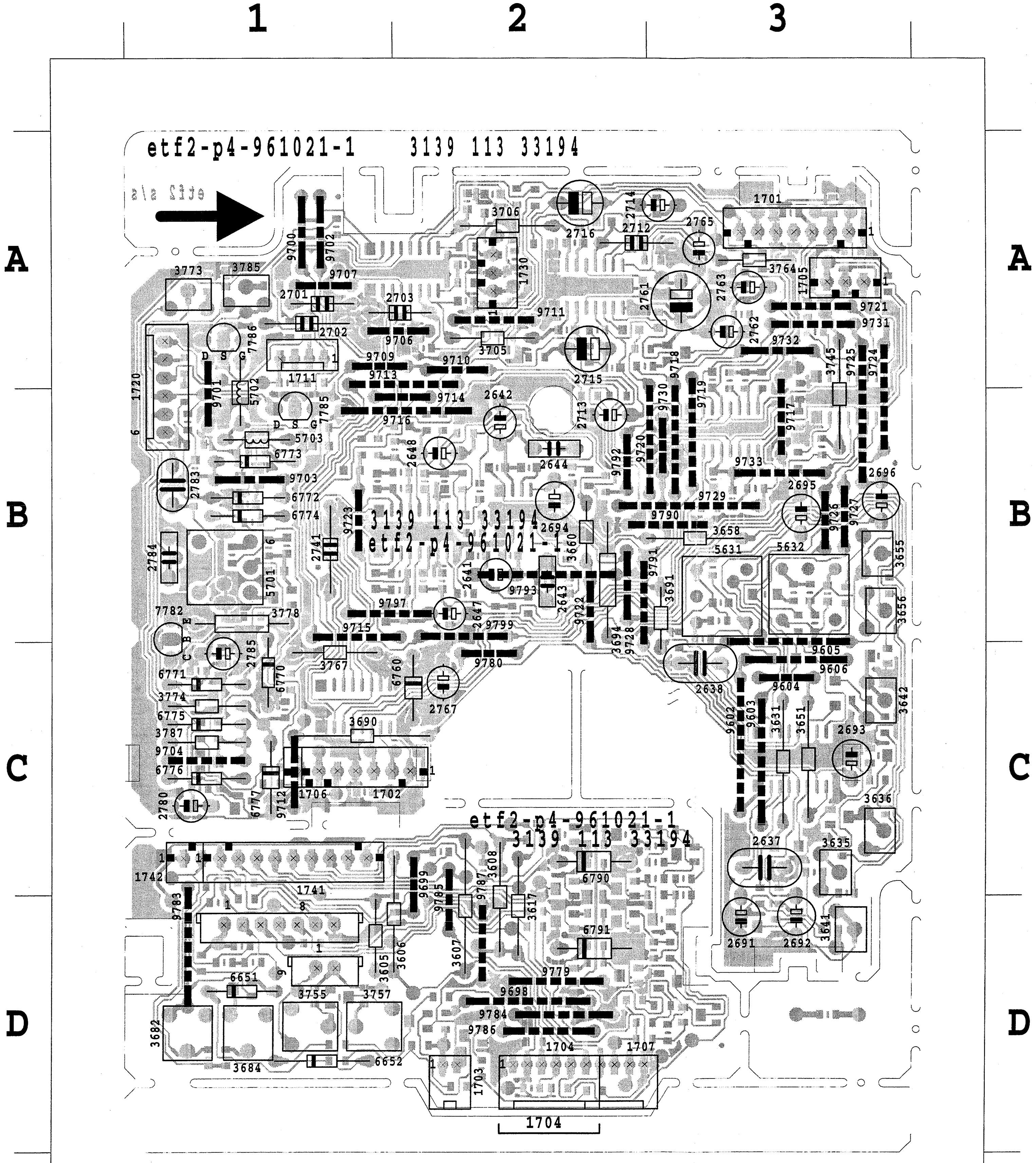
o For Dolby variant

Variant	2701 2702	2723 2724	2725 2726	3772
DB/DD/FR	100p	180p	220p	6k8
DB/DD/FF	330p	150p	270p	6k8

Note: Deck A = Deck 1
Deck B = Deck 2

1701	K21	3732	D10
1702	M20	3733	F 4
1705	A12	3734	D 3
1706	M21	3735	E 3
1711	E 1	3736	C 3
1720	F 1	3743	L17
1730	D 1	3744	L18
2631	H19	3745	L17
2632	B19	3746	K17
2633	F16	3760	E 9
2634	C16	3761	L 5
2635	G17	3762	L 3
2636	D17	3763	F 7
2637	G20	3764	D 7
2638	D20	3765	E 8
2639	J18	3766	E 9
2640	B18	3767	N19
2641	I18	3768	K20
2642	A18	3769	M 5
2643	J17	3770	M 2
2644	A17	3771	M 3
2645	J17	3772	M 4
2646	A17	3773	L 4
2647	J16	3774	L 4
2648	B16	3775	N 3
2691	G20	3776	N 3
2692	G19	3777	N 2
2693	G18	3778	L 2
2694	I16	3779	J 3
2695	G20	3780	J 2
2696	D20	3781	J 2
2701	E 3	3782	I 1
2702	D 3	3783	I 1
2703	E 4	3784	H 2
2704	D 4	3785	H 2
2705	E 4	3786	N 6
2706	D 4	3787	J 4
2707	E 5	3788	J 4
2708	D 5	3789	N 5
2709	F 7	3790	M 6
2710	D 7	4593	F12
2711	F 8	4637	E14
2712	D 8	4638	B14
2713	F 9	4639	G14
2714	C 9	4640	D14
2715	G 6	4643	B 9
2716	E 6	4644	A 6
2717	I 9	4799	K 6
2718	B 9	5631	G17
2719	I 8	5632	E17
2720	B 8	5701	M 1
2721	J 6	5702	I 3
2722	A 6	5703	J 2
2723	J 5	6760	N18
2724	A 6	6770	L 2
2725	K 5	6771	L 2
2726	A 5	6772	K 1
2727	H 6	6773	J 2
2728	B 6	6774	J 3
2729	F11	6775	J 4
2730	D11	6776	N 4
2731	E12	6777	L 4
2732	C12	7630	F18
2733	G 8	7631	H17
2734	D 8	7632	C17
2735	H 6	7633	H16
2737	G 9	7634	C16
2738	D 9	7640	J17
2740	J 2	7640	A17
2741	K 4	7710	G 5
2752	K 4	7710	D 5
2760	L 5	7710	G 4
2761	D 7	7720	E 7
2762	E 8	7720	C 7
2763	E 8	7730	H 7
2765	C 8	7730	B 7
2767	N18	7730	K 7
2780	N 4	7740	C12
2781	N 3	7740	H11
2782	N 3	7740	E12
2783	N 1	7750	N17
2784	N 1	7760	E14
2785	N 2	7760	H13
2786	J 1	7760	B14
2787	K 3	7780	N 5
2788	M18	7781	N 3
3631	H16	7782	L 2
3632	B16	7783	L 3
3633	H17	7784	J 2
3634	C17	7785	I 2
3635	H16	7786	I 3
3636	C17	7787	E 9
3637	H17	7788	N 6
3638	C17	9712	N20
3639	H18	9731	D12
3640	C18	9792	A10
3641	H18	9793	J10
3642	C18	9797	G 9
3643	H18	T161	N 1
3644	C18	T162	G 2
3645	G16	T163	G 2
3646	D16	T164	F 2
3647	G16	T165	F 2
3648	E16	T166	F 2
3649	G17	T167	D 2
3650	D17	T168	D 2
3651	G18	T169	D 2
3652	E18	T170	M 6
3655	J21	T171	E12
3656	B21	T172	B12
3657	J19	T173	K18
3658	B18	T174	H21
3659	I19	T175	L18
3660	A19	T176	H19
3661	K18	T177	E 9
3662	A18	T178	E 3
3663	K17	T179	C 2
3664	A17	T180	L21
3665	K17	T181	K21
3666	A17	T182	G20
3667	G14	T183	E20
3668	A14	T184	M20
3690	H19	T185	M20
3691	D20	T186	M20
3692	D19	T187	N 6
3693	I18	T188	L 3
3694	G18	T189	D 7
3695	I17	T190	A12
3701	F 2	T191	B12
3702	E 2	T192	G19
3703	E 3	T193	I17
3704	D 3	T194	N18
3705	E 6	T195	M 4
3706	C 6		
3707	F 6		
3708	D 6		
3709	H 6		
3710	E 6		
3711	G 8		
3712	D 8		
3713	F 9		
3714	C 9		
3715	F 9		
3716	D10		
3717	H 9		
3718	B 9		
3719	I 8		
3720	B 8		
3721	I 8		
3722	B 9		
3723	I 6		
3724	B 6		
3725	J 6		
3726	A 6		
3727	F10		
3728	D10		
3729	G10		
3730	D10		
3731	G10		

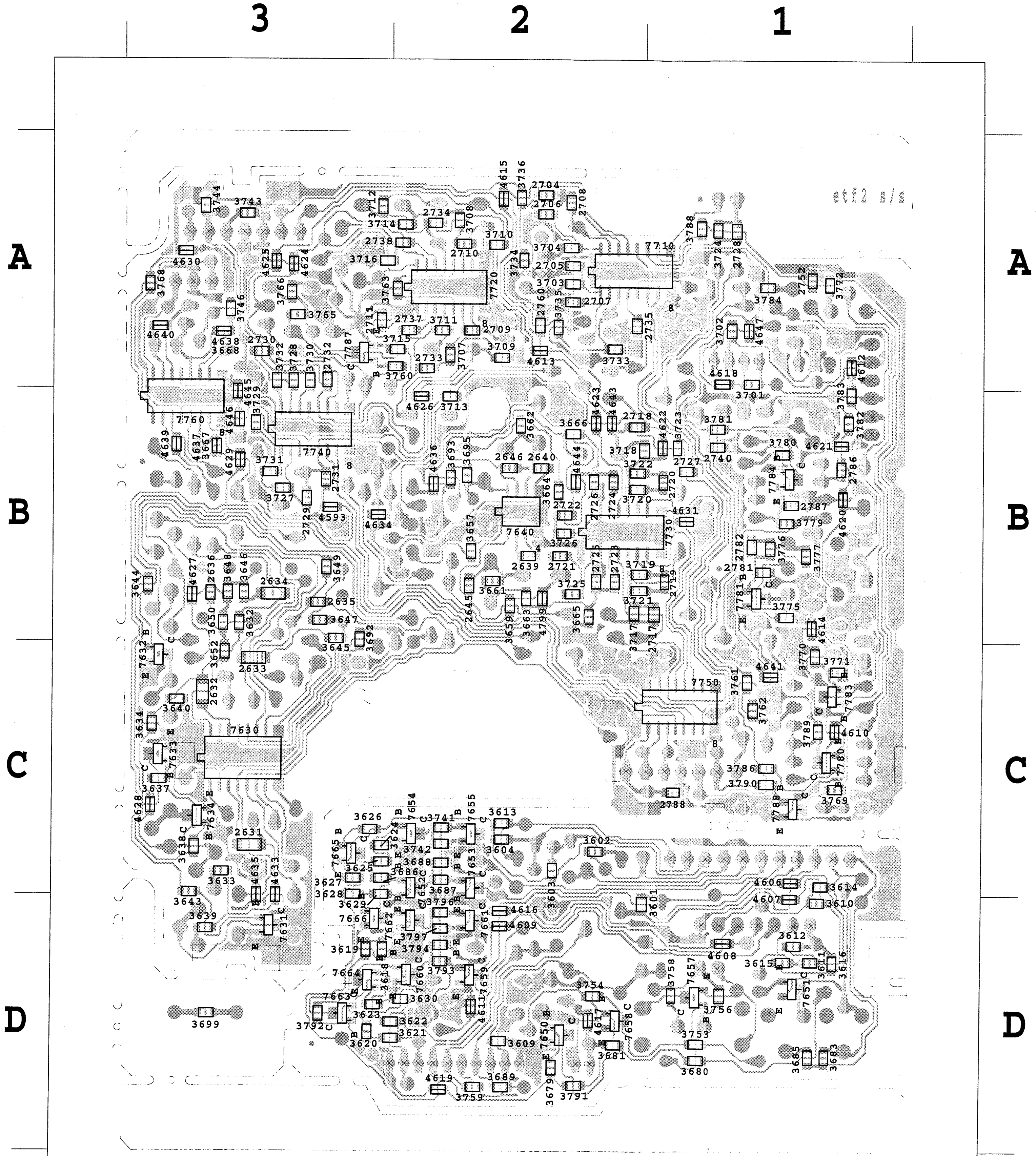
COMPONENT LAYOUT


1
2
3
A
B
C
D
etf2-p4-961021-1
3139 113 33194
etf2 s/s
3139 113 33194
etf2-p4-961021-1
etf2-p4-961021-1
3139 113 33194
1701
1705
1720
1711
1730
1702
1706
1741
1742
1703
1704
1707
5631
5632
5701
5702
5703
6790
6791
6651
6652
3682
3684
3755
3757

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

8	D	1
9	D	1
1701	A	3
1702	C	1
1703	D	2
1704	D	2
1705	A	3
1706	C	1
1707	D	2
1711	A	1
1720	A	1
1730	A	2
1741	C	1
1742	C	1
2637	C	3
2638	C	3
2641	B	2
2642	B	2
2643	B	2
2644	B	2
2647	B	2
2648	B	2
2691	D	3
2692	D	3
2693	C	3
2694	B	2
2695	B	3
2696	B	3
2701	A	1
2702	A	1
2703	A	2
2712	A	2
2713	B	2
2714	A	3
2715	A	2
2716	A	2
2741	B	1
2761	A	3
2762	A	3
2763	A	3
2765	A	3
2767	C	2
2780	C	1
2783	B	1
2784	B	1
2785	C	1
3605	D	1
3606	D	2
3607	D	2
3608	D	2
3617	D	2
3631	C	3
3635	C	3
3636	C	3
3641	D	3
3642	C	3
3651	C	3
3655	B	3
3656	B	3
3658	B	3
3660	B	2
3682	D	1
3684	D	1
3690	C	1
3691	B	3
3694	B	2
3705	A	2
3706	A	2
3745	B	3
3755	D	1
3757	D	1
3764	A	3
3767	C	1
3773	A	1
3774	C	1
3778	B	1
3785	A	1
3787	C	1
5631	B	3
5632	B	3
5701	B	1
5702	B	1
5703	B	1
6651	D	1
6652	D	1
6760	C	2
6770	C	1
6771	C	1
6772	B	1
6773	B	1
6774	B	1
6775	C	1
6776	C	1
6777	C	1
6790	C	2
6791	D	2
7782	B	1
7785	B	1
7786	A	1
9602	C	3
9603	C	3
9604	C	3
9605	C	3
9606	C	3
9698	D	2
9699	C	2
9700	A	1
9701	B	1
9702	A	1
9703	B	1
9704	C	1
9706	A	2
9707	A	1
9709	A	1
9710	A	2
9711	A	2
9712	C	1
9713	A	2
9714	B	2
9715	B	1
9716	B	2
9717	B	3
9718	B	3
9719	B	3
9720	B	3
9721	A	3
9722	B	2
9723	B	1
9724	B	3
9725	B	3
9726	B	3
9727	B	3
9728	B	2
9729	B	3
9730	B	3
9731	A	3
9732	A	3
9733	B	3
9779	D	2
9780	C	2
9783	D	1
9784	D	2
9785	D	2
9786	D	2
9787	D	2
9790	B	3
9791	B	2
9792	B	2
9793	B	2
9797	B	1
9799	B	2

CHIP LAYOUT



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

2631	C	3
2632	C	3
2633	C	3
2634	B	3
2635	B	3
2636	B	3
2639	B	2
2640	B	2
2645	B	2
2646	B	2
2704	A	2
2705	A	2
2706	A	2
2707	A	2
2708	A	2
2709	A	2
2710	A	2
2711	A	3
2717	B	1
2718	B	2
2719	B	1
2720	B	1
2721	B	2
2722	B	2
2723	B	2
2724	B	2
2725	B	2
2726	B	2
2727	B	1
2728	A	1
2729	B	3
2730	A	3
2731	B	3
2732	A	3
2733	A	2
2734	A	2
2735	A	2
2737	A	2
2738	A	2
2740	B	1
2752	A	1
2760	A	2
2781	B	1
2782	B	1
2786	B	1
2787	B	1
2788	C	1
3601	D	2
3602	C	2
3603	C	2
3604	C	2
3609	D	2
3610	D	1
3611	D	1
3612	D	1
3613	C	2
3614	C	1
3615	D	1
3616	D	1
3618	D	3
3619	D	3
3620	D	3
3621	D	2
3622	D	2
3623	D	3
3624	C	3
3625	C	3
3626	C	3
3627	C	3
3628	D	3
3629	D	3
3630	D	2
3632	B	3
3633	C	3
3634	C	3
3637	C	3
3638	C	3
3639	D	3
3640	C	3
3643	C	3
3644	B	3
3645	B	3
3646	B	3
3647	B	3
3648	B	3
3649	B	3
3650	B	3
3652	C	3
3657	B	2
3659	B	2
3661	B	2
3662	B	2
3663	B	2
3664	B	2
3665	B	2
3666	B	2
3667	B	3
3668	A	3
3679	D	2
3680	D	1
3681	D	2
3683	D	1
3685	D	1
3686	C	3
3687	C	2
3688	C	2
3689	D	2
3692	B	3
3693	B	2
3695	B	2
3699	D	3
3701	A	1
3702	A	1
3703	A	2
3704	A	2
3707	A	2
3708	A	2
3709	A	2
3710	A	2
3711	A	2
3712	A	3
3713	B	2
3714	A	2
3715	A	2
3716	A	3
3717	B	2
3718	B	2
3719	B	2
3720	B	2
3721	B	2
3722	B	2
3723	B	1
3724	A	1
3725	B	2
3726	B	2
3727	B	3
3728	A	3
3729	B	3
3730	A	3
3731	B	3
3732	A	3
3733	A	2
3734	A	2
3735	A	2
3736	A	2
3741	C	2
3742	C	2
3743	A	3
3744	A	3
3746	A	3
3753	D	1
3754	D	2
3756	D	1
3758	D	1
3759	D	2
3760	A	2
3761	C	1
3762	C	1
3763	A	2
3765	A	3
3766	A	3
3768	A	3
3769	C	1
3770	C	1
3771	C	1
3772	A	1
3775	B	1
3776	B	1
3777	B	1
3779	B	1
3780	B	1
3781	B	1
3782	B	1
3783	B	1
3784	A	1
3786	C	1
3788	A	1
3789	C	1
3790	C	1
3791	D	2
3792	D	3
3793	D	2
3794	D	2
3796	D	2
3797	D	2
4593	B	3
4606	C	1
4607	D	1
4608	D	1
4609	D	2
4610	C	1
4611	D	2
4612	A	1
4613	A	2
4614	B	1
4615	A	2
4616	D	2
4617	D	2
4618	A	1
4619	D	2
4620	B	1
4621	B	1
4622	B	1
4623	B	2
4624	A	3
4625	A	3
4626	B	2
4627	B	3
4628	C	3
4629	B	3
4630	A	3
4631	B	1
4633	D	3
4634	B	3
4635	D	3
4636	B	2
4637	B	3
4638	A	3
4639	B	3
4640	A	3
4641	C	1
4643	B	2
4644	B	2
4645	B	3
4646	B	3
4647	A	1
4799	B	2
7630	C	3
7631	D	3
7632	C	3
7633	C	3
7634	C	3
7640	B	2
7650	D	2
7651	D	1
7652	C	2
7653	C	2
7654	C	2
7655	C	2
7657	D	1
7658	D	2
7659	D	2
7660	D	2
7661	D	2
7662	D	2
7663	D	3
7664	D	3
7665	C	3
7666	D	3
7710	A	2
7720	A	2
7730	B	2
7740	B	3
7750	C	1
7760	B	3
7780	C	1
7781	B	1
7783	C	1
7784	B	1
7787	A	3
7788	C	1

A
B
C
D

TAPE MECHANISM A ELECTRONICS

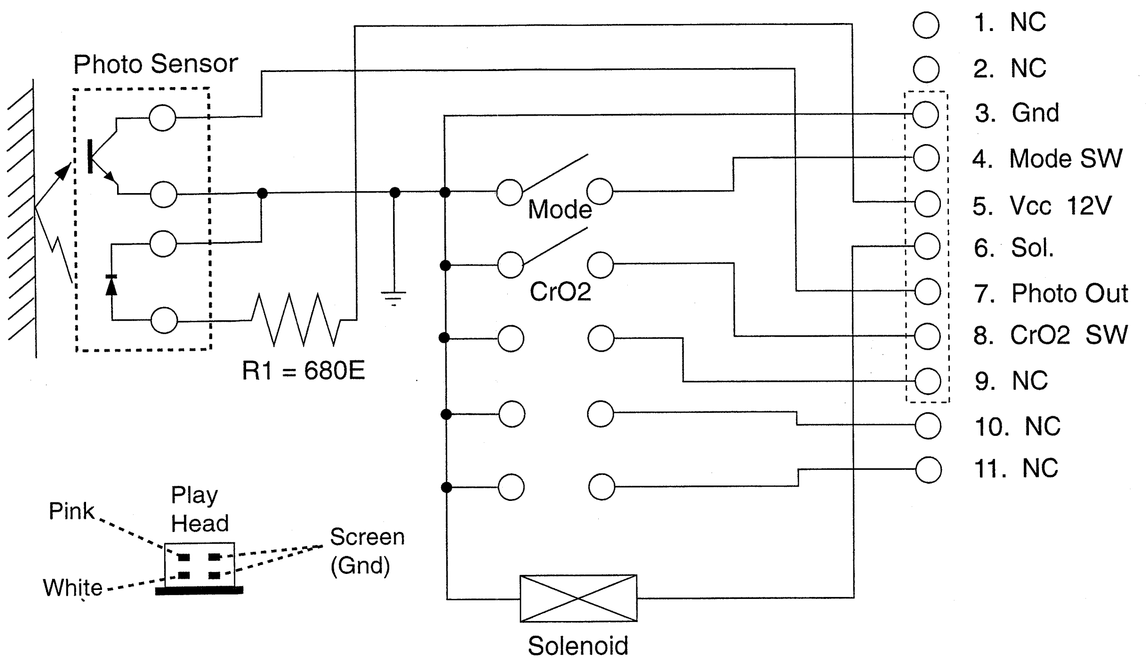
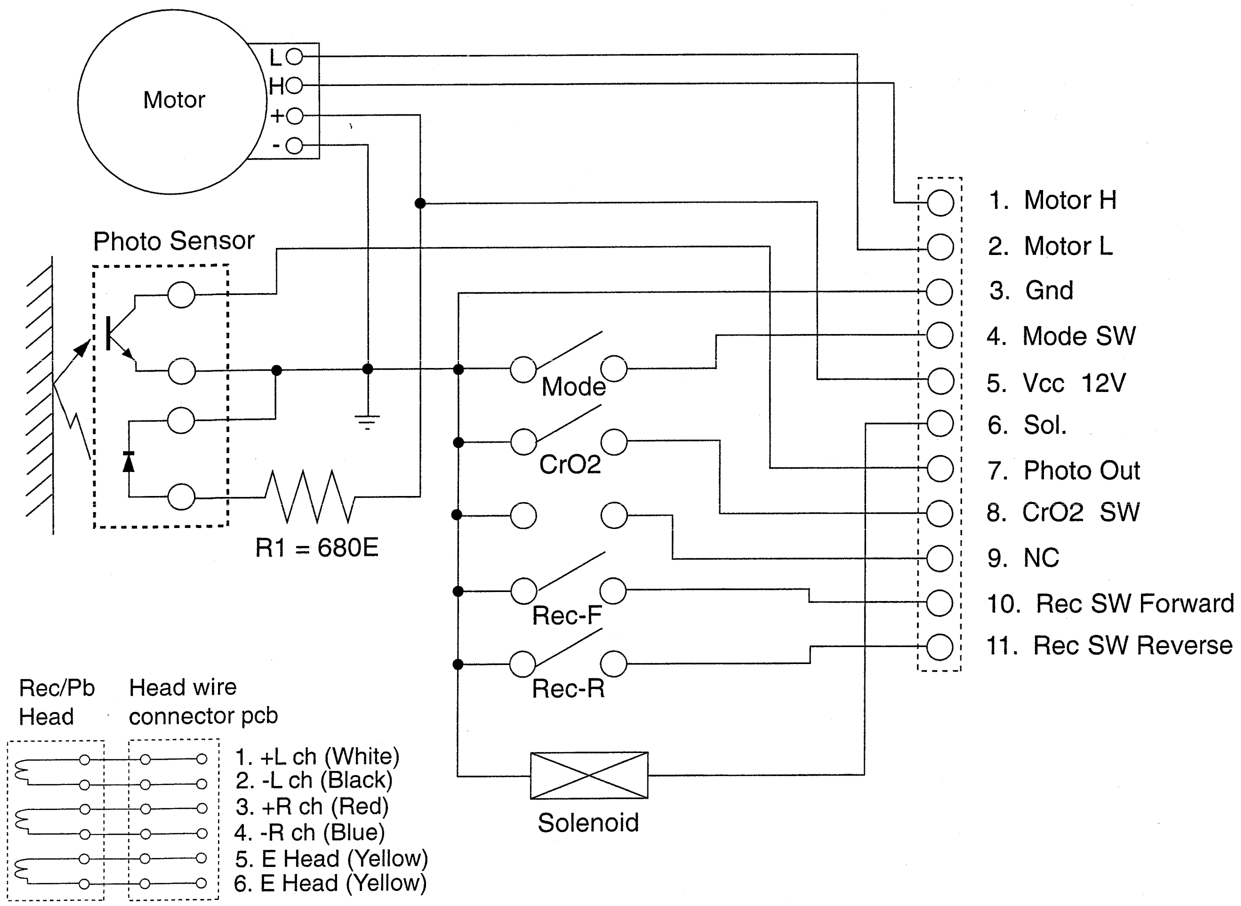
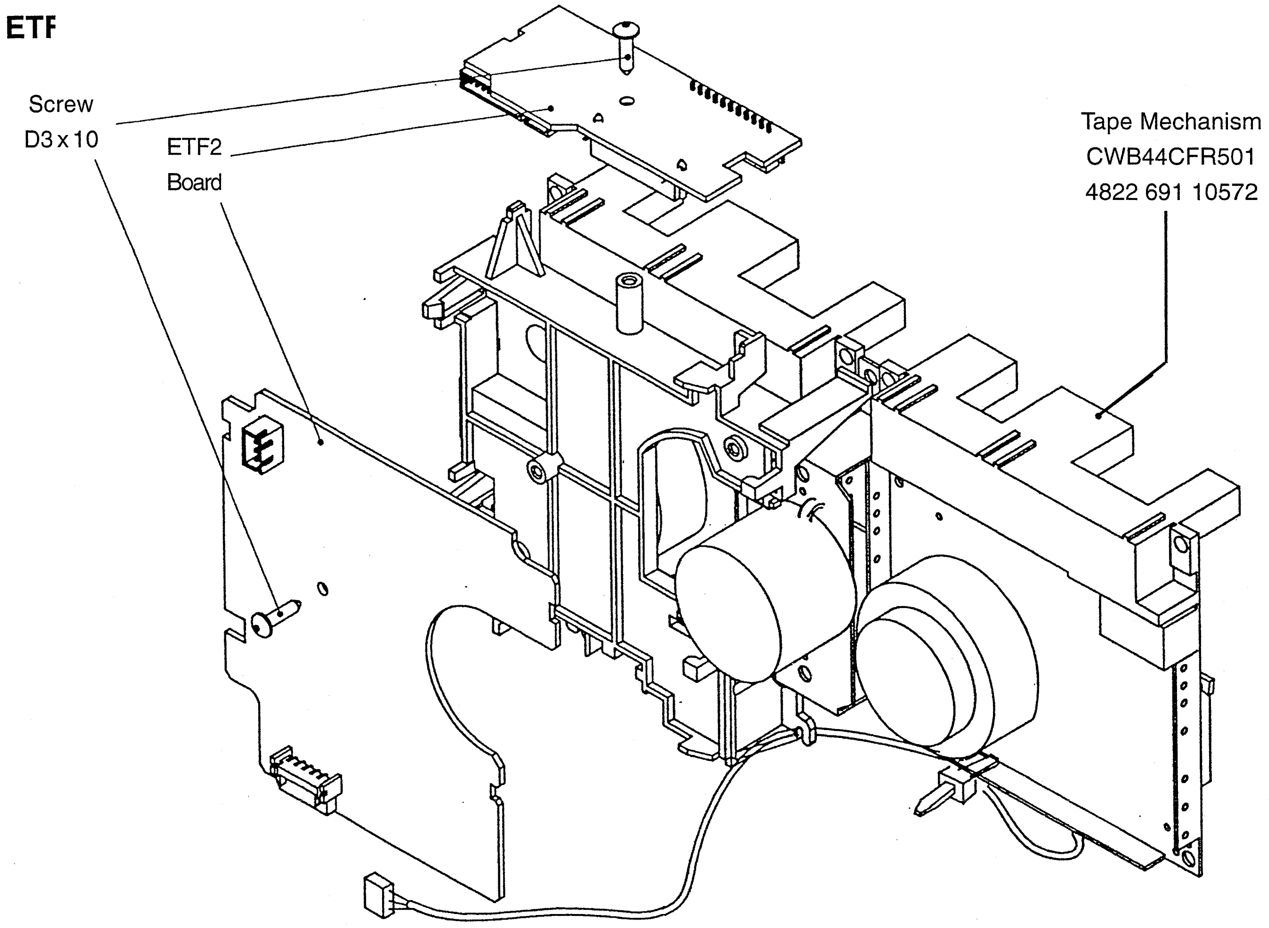


Photo Sensor
Mode
CrO2
R1 = 680E
1. NC
2. NC
3. Gnd
4. Mode SW
5. Vcc 12V
6. Sol.
7. Photo Out
8. CrO2 SW
9. NC
10. NC
11. NC
Pink
Play Head
White
Screen (Gnd)
Solenoid

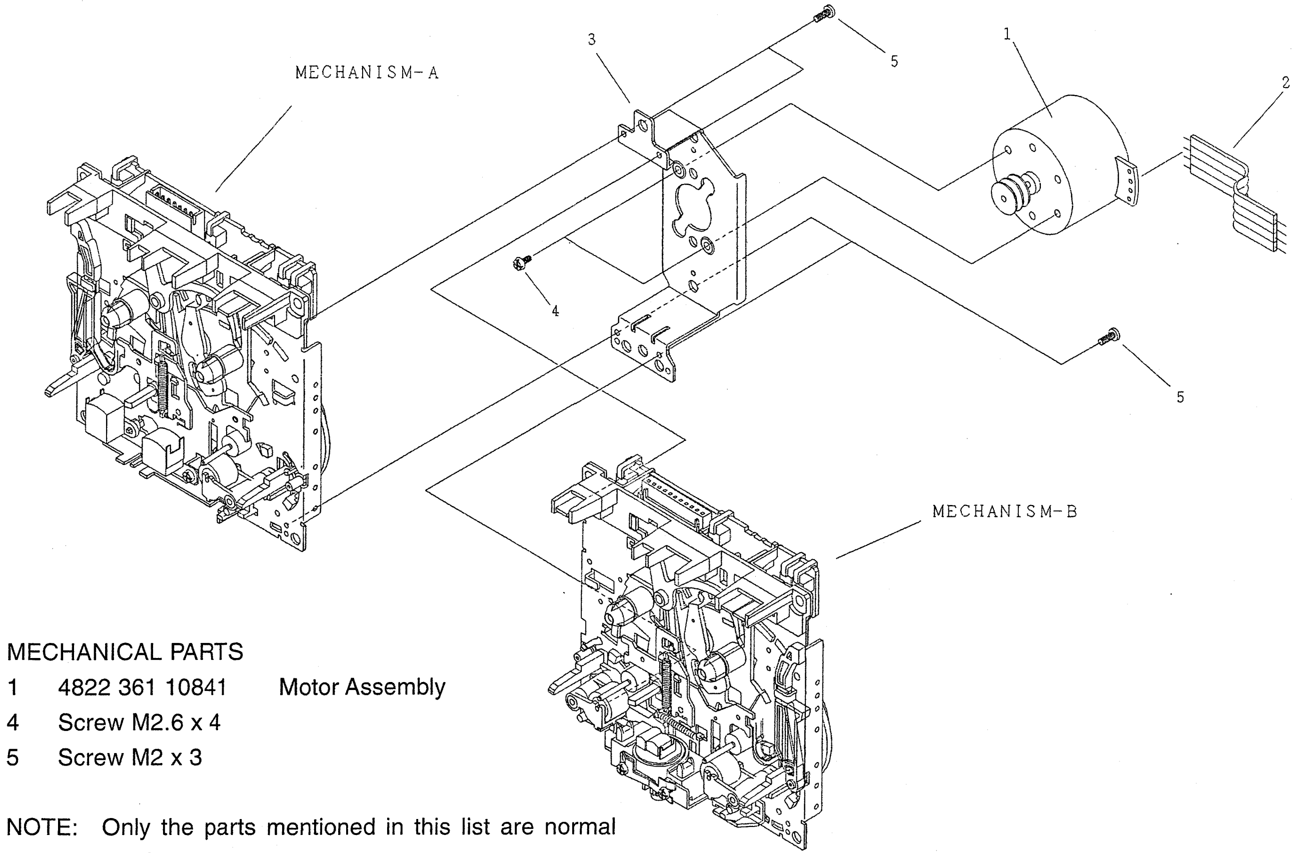
TAPE MECHANISM B ELECTRONICS


Motor
L
H
+
-
Photo Sensor
Mode
CrO2
Rec-F
Rec-R
R1 = 680E
1. Motor H
2. Motor L
3. Gnd
4. Mode SW
5. Vcc 12V
6. Sol.
7. Photo Out
8. CrO2 SW
9. NC
10. Rec SW Forward
11. Rec SW Reverse
Solenoid
Rec/Pb Head
Head wire connector pcb
1. +L ch (White)
2. -L ch (Black)
3. +R ch (Red)
4. -R ch (Blue)
5. E Head (Yellow)
6. E Head (Yellow)

ETF


Screw
D3 x 10
ETF2
Board
Tape Mechanism
CWB44CFR501
4822 691 10572

TAPE MECHANISM A & B


MECHANISM-A
MECHANISM-B
1
2
3
4
5
5

MECHANICAL PARTS

1	4822 361 10841	Motor Assembly
4	Screw M2.6 x 4	
5	Screw M2 x 3	

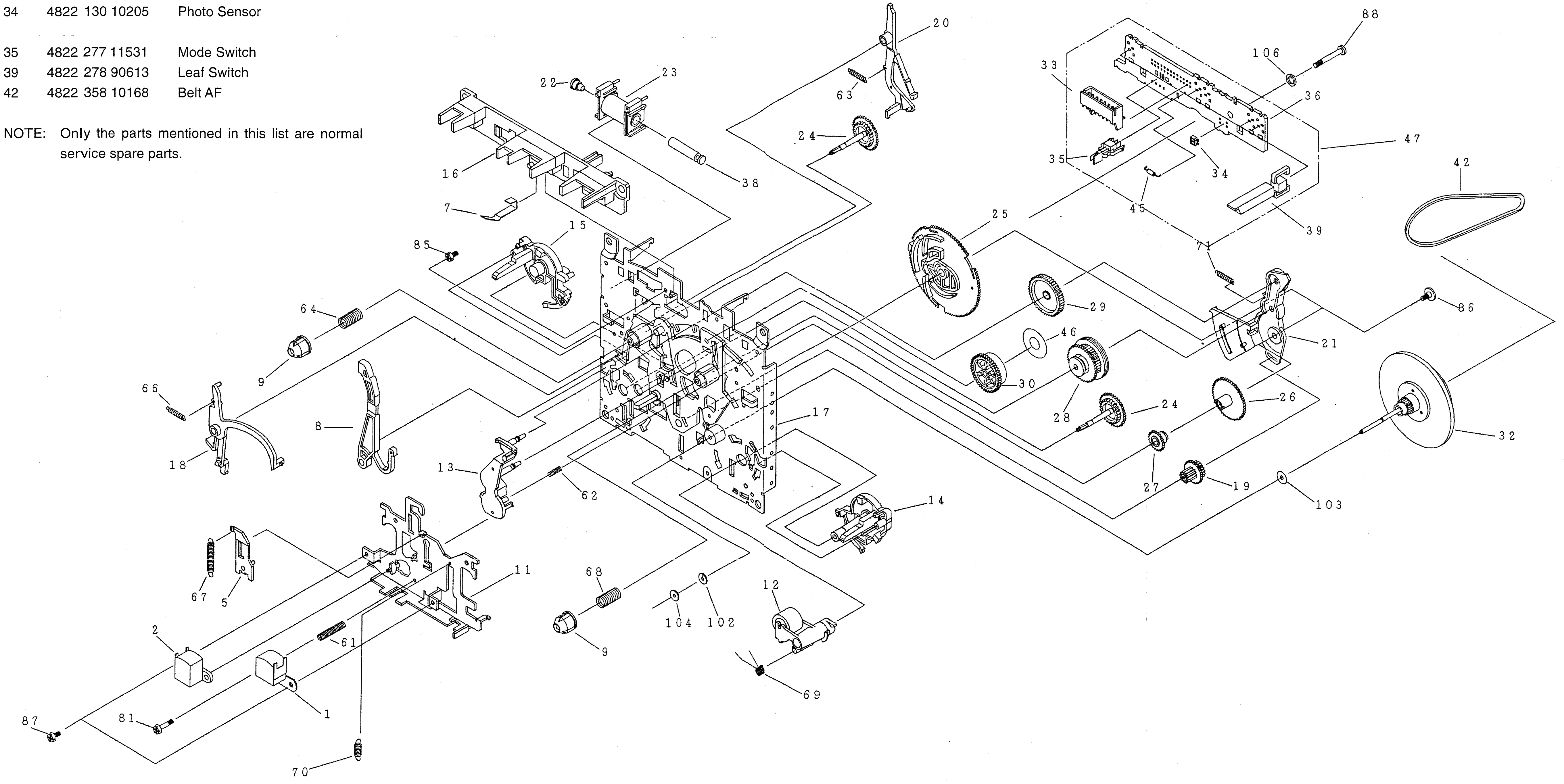
NOTE: Only the parts mentioned in this list are normal service spare parts.

TAPE MECHANISM A

MECHANICAL PARTS

1	4822 249 10397	Play Head
12	4822 528 10974	Assembly, Arm Pinch R
23	4822 281 11069	Coil Assembly
34	4822 130 10205	Photo Sensor
35	4822 277 11531	Mode Switch
39	4822 278 90613	Leaf Switch
42	4822 358 10168	Belt AF

NOTE: Only the parts mentioned in this list are normal service spare parts.


20
88
22
23
33
106
63
36
24
47
16
38
35
34
42
7
15
45
25
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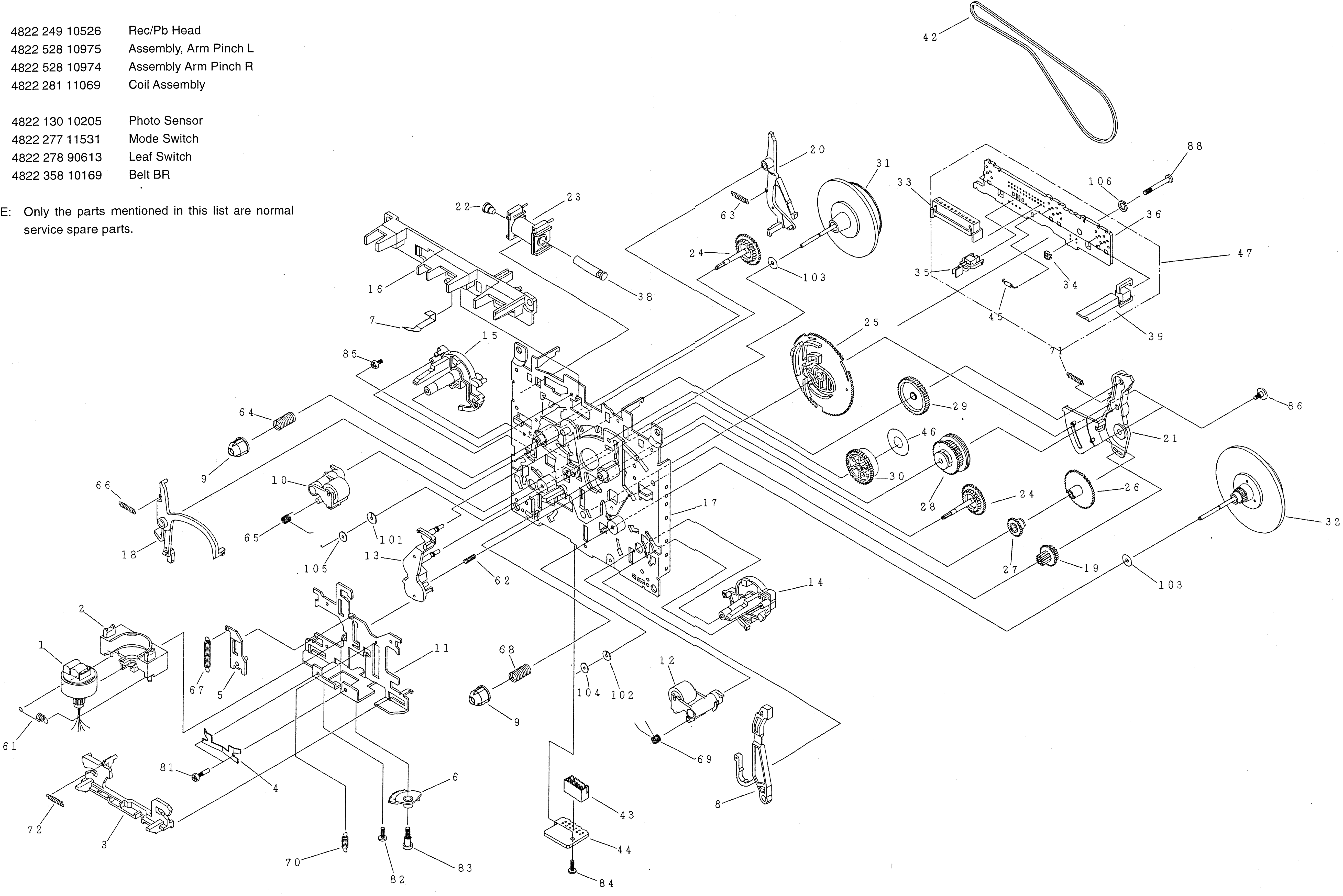
85
71
64
29
86
46
21
66
9
30
28
24
26
8
17
32
18
13
62
27
19
103
14
11
68
67
5
104
102
12
2
61
9
1
69
87
81
70

TAPE MECHANISM B

MECHANICAL PARTS

1	4822 249 10526	Rec/Pb Head
10	4822 528 10975	Assembly, Arm Pinch L
12	4822 528 10974	Assembly Arm Pinch R
23	4822 281 11069	Coil Assembly
34	4822 130 10205	Photo Sensor
35	4822 277 11531	Mode Switch
39	4822 278 90613	Leaf Switch
42	4822 358 10169	Belt BR

NOTE: Only the parts mentioned in this list are normal service spare parts.


42
88
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85
86
29
64
46
21
9
10
30
66
28
24
26
17
32
101
65
27
19
18
13
105
62
103
14
2
1
11
68
12
67
5
104
102
9
61
69
81
4
6
8
43
72
3
70
82
83
44
84

ELECTRICAL PARTS LIST - ETF2 BOARD

CAPACITORS

2631	4822 122 32542	47nF 10% 63V
2632	4822 122 32542	47nF 10% 63V
2633	4822 122 32927	220nF +80 / -20% 50V
2634	4822 122 32927	220nF +80 / -20% 50V
2635	4822 122 33891	3,3nF 10% 63V
2636	4822 122 33891	3,3nF 10% 63V
2637	5322 121 42498	680nF 5% 63V
2638	5322 121 42498	680nF 5% 63V
2639	5322 122 32531	100pF 5% 50V
2640	5322 122 32531	100pF 5% 50V
2641	4822 124 40246	4,7µF 20% 63V
2642	4822 124 40246	4,7µF 20% 63V
2643	4822 121 43179	18nF 5% 250V
2644	4822 121 43179	18nF 5% 250V
2645	5322 122 32448	10pF 5% 50V
2646	5322 122 32448	10pF 5% 50V
2647	4822 124 40246	4,7µF 20% 63V
2648	4822 124 40246	4,7µF 20% 63V
2691	4822 124 40246	4,7µF 20% 63V
2692	4822 124 41584	100µF 20% 10V
2693	4822 124 81029	100µF 20% 25V
2694	4822 124 81029	100µF 20% 25V
2695	4822 124 41576	2,2µF 20% 50V
2696	4822 124 41576	2,2µF 20% 50V
2701	4822 122 33195	100pF 10% 50V
2702	4822 122 33195	100pF 10% 50V
2703	4822 122 33195	100pF 10% 50V
2704	5322 122 32531	100pF 5% 50V
2705	5322 122 31863	330pF 5% 50V
2706	5322 122 31863	330pF 5% 50V
2707	5322 122 34099	470pF 10% 63V
2708	5322 122 34099	470pF 10% 63V
2709	5322 122 31863	330pF 5% 50V
2710	5322 122 31863	330pF 5% 50V
2711	5322 122 32531	100pF 5% 50V
2712	4822 122 33195	100pF 10% 50V
2713	4822 124 41579	10µF 20% 50V
2714	4822 124 41579	10µF 20% 50V
2715	4822 124 41584	100µF 20% 10V
2715	4822 124 40849	330µF 20% 16V
2716	4822 124 41584	100µF 20% 10V
2716	4822 124 40849	330µF 20% 16V
2717	4822 122 33175	2,2nF 20% 50V
2718	4822 122 33175	2,2nF 20% 50V
2719	4822 122 33893	18nF 10% 63V
2720	4822 122 33893	18nF 10% 63V
2721	4822 122 33342	33nF 10% 63V
2721	4822 122 33177	10nF 20% 50V
2722	4822 122 33342	33nF 10% 63V
2722	4822 122 33177	10nF 20% 50V
2723	4822 126 10326	180pF 5% 63V
2723	4822 122 33342	33nF 10% 63V
2724	4822 126 10326	180pF 5% 63V
2724	4822 122 33342	33nF 10% 63V
2725	5322 126 10794	220pF 5% 63V
2726	5322 126 10794	220pF 5% 63V
2727	4822 122 32535	680pF 10% 63V
2728	4822 122 32535	680pF 10% 63V
2729	4822 122 32541	27nF 10% 63V
2730	4822 122 32541	27nF 10% 63V
2733	5322 122 34099	470pF 10% 63V
2734	5322 122 34099	470pF 10% 63V
2735	4822 126 10002	100nF 20% 25V
2737	5322 122 32654	22nF 10% 63V
2738	5322 122 32654	22nF 10% 63V
2740	5322 122 32654	22nF 10% 63V
2741	4822 126 11714	4,7nF 20%
2752	5322 122 32654	22nF 10% 63V
2760	4822 126 10002	100nF 20% 25V
2761	4822 124 22263	220µF 20% 25V
2762	4822 124 41576	2,2µF 20% 50V
2763	4822 124 41584	100µF 20% 10V
2765	4822 124 40433	47µF 20% 25V
2767	4822 124 41579	10µF 20% 50V
2780	4822 124 41596	22µF 20% 50V
2781	4822 122 33177	10nF 20% 50V
2782	5322 126 10223	4,7nF 10% 63V
2783	5322 121 42386	100nF 5% 63V
2784	4822 121 51305	15nF 10% 50V
2785	4822 124 40242	1µF 20% 63V
2786	5322 122 32531	100pF 5% 50V
2787	4822 122 33342	33nF 10% 63V
2788	5322 122 34123	1nF 10% 50V

RESISTORS

3601	4822 117 11449	2k2 1% 0,1W
3602	4822 117 11449	2k2 1% 0,1W
3604	4822 117 11449	2k2 1% 0,1W
3605	4822 116 52239	120k 5% 0,5W
3606	4822 116 52291	56k 5% 0,5W
3608	4822 116 52239	120k 5% 0,5W
3609	4822 051 20273	27k 5% 0,1W
3610	4822 117 11449	2k2 1% 0,1W
3611	4822 117 11449	2k2 1% 0,1W
3613	4822 117 11449	2k2 1% 0,1W
3614	4822 051 20124	120k 5% 0,1W
3615	4822 051 20563	56k 5% 0,1W
3617	4822 116 52291	56k 5% 0,5W
3618	4822 051 20472	4k7 5% 0,1W
3619	4822 117 10833	10k 1% 0,1W
3620	4822 117 10833	10k 1% 0,1W
3621	4822 051 20473	47k 5% 0,1W
3622	4822 051 20473	47k 5% 0,1W
3623	4822 117 10833	10k 1% 0,1W
3624	4822 051 20472	4k7 5% 0,1W
3625	4822 117 10833	10k 1% 0,1W

ELECTRICAL PARTS LIST - ETF2 BOARD

3626	4822 117 10833		10k 1% 0,1W
3627	4822 051 20473		47k 5% 0,1W
3628	4822 051 20473		47k 5% 0,1W
3629	4822 117 10833		10k 1% 0,1W
3630	4822 051 20273		27k 5% 0,1W
3631	4822 116 83884		47k 5% 0,5W
3632	4822 051 20473		47k 5% 0,1W
3633	4822 051 20332		3k3 5% 0,1W
3634	4822 051 20332		3k3 5% 0,1W
3635	4822 100 11771		Trimmer 20k 30% 0,1W
3636	4822 100 11771		Trimmer 20k 30% 0,1W
3637	4822 051 20473		47k 5% 0,1W
3638	4822 051 20473		47k 5% 0,1W
3639	4822 051 20332		3k3 5% 0,1W
3640	4822 051 20332		3k3 5% 0,1W
3641	4822 100 11771		Trimmer 20k 30% 0,1W
3642	4822 100 11771		Trimmer 20k 30% 0,1W
3643	4822 051 20473		47k 5% 0,1W
3644	4822 051 20473		47k 5% 0,1W
3645	4822 051 20393		39k 5% 0,1W
3646	4822 051 20393		39k 5% 0,1W
3647	4822 051 20332		3k3 5% 0,1W
3648	4822 051 20332		3k3 5% 0,1W
3649	4822 051 20562		5k6 5% 0,1W
3650	4822 051 20562		5k6 5% 0,1W
3651	4822 050 11002		1k 1% 0,4W
3652	4822 051 10102		1k 2% 0,25W
3655	5322 100 11542		Trimmer 4k7 30% 0,1W
3656	5322 100 11542		Trimmer 4k7 30% 0,1W
3657	4822 051 10102		1k 2% 0,25W
3658	4822 050 11002		1k 1% 0,4W
3659	4822 051 20333		33k 5% 0,1W
3660	4822 116 52271		33k 5% 0,5W
3661	4822 051 20474		470k 5% 0,1W
3662	4822 051 20474		470k 5% 0,1W
3663	4822 051 20184		180k 5% 0,1W
3664	4822 051 20184		180k 5% 0,1W
3665	4822 117 11149		82k 1% 0,1W
3666	4822 117 11149		82k 1% 0,1W
3667	4822 051 20473		47k 5% 0,1W
3668	4822 051 20473		47k 5% 0,1W
3679	4822 051 20473		47k 5% 0,1W
3680	4822 051 20472		4k7 5% 0,1W
3681	4822 051 20472		4k7 5% 0,1W
3682	4822 100 11319		Trimmer 4k7 30% 0,1W
3683	4822 051 20822		8k2 5% 0,1W (dolby only)
3683	4822 117 10833		10k 1% 0,1W
3684	4822 100 11319		Trimmer 4k7 30% 0,1W
3685	4822 051 20822		8k2 5% 0,1W
3686	4822 051 20473		47k 5% 0,1W
3687	4822 051 20471		470R 5% 0,1W
3688	4822 051 20104		100k 5% 0,1W
3689	4822 051 20273		27k 5% 0,1W
3690	4822 116 83864		10k 5% 0,5W
3691	4822 116 83864		10k 5% 0,5W
3692	4822 051 20433		43k 5% 0,1W
3693	4822 051 20689		68R 5% 0,1W
3694	4822 052 10109	⚠	10R 5% 0,33W
3695	4822 051 20689		68R 5% 0,1W
3699	4822 051 20562		5k6 5% 0,1W
3699	4822 051 20332		3k3 5% 0,1W
3701	4822 051 20221		220R 5% 0,1W
3702	4822 051 20221		220R 5% 0,1W
3703	4822 051 20221		220R 5% 0,1W
3704	4822 051 20221		220R 5% 0,1W
3705	4822 116 83872		220R 5% 0,5W
3706	4822 116 83872		220R 5% 0,5W
3707	4822 051 20101		100R 5% 0,1W
3708	4822 051 20101		100R 5% 0,1W
3709	4822 051 20229		22R 5% 0,1W
3709	4822 051 20688		6R80 5% 0,1W
3710	4822 051 20229		22R 5% 0,1W
3710	4822 051 20688		6R80 5% 0,1W
3711	4822 051 20184		180k 5% 0,1W
3712	4822 051 20184		180k 5% 0,1W
3713	4822 117 11449		2k2 1% 0,1W
3714	4822 117 11449		2k2 1% 0,1W
3715	4822 051 20182		1k8 5% 0,1W
3716	4822 051 20182		1k8 5% 0,1W
3717	4822 051 20392		3k9 5% 0,1W
3718	4822 051 20392		3k9 5% 0,1W
3719	4822 051 20822		8k2 5% 0,1W
3720	4822 051 20822		8k2 5% 0,1W
3721	4822 051 20562		5k6 5% 0,1W
3722	4822 051 20562		5k6 5% 0,1W
3723	4822 117 11383		12k 1% 0,1W
3724	4822 117 11383		12k 1% 0,1W
3725	4822 051 20224		220k 5% 0,1W
3725	4822 051 10102		1k 2% 0,25W
3726	4822 051 20224		220k 5% 0,1W
3726	4822 051 10102		1k 2% 0,25W
3727	4822 051 20562		5k6 5% 0,1W
3728	4822 051 20562		5k6 5% 0,1W
3729	4822 051 20272		2k7 5% 0,1W
3730	4822 051 20272		2k7 5% 0,1W
3731	4822 051 20562		5k6 5% 0,1W
3731	4822 051 20682		6k8 5% 0,1W
3732	4822 051 20562		5k6 5% 0,1W
3732	4822 051 20682		6k8 5% 0,1W
3733	4822 051 20472		4k7 5% 0,1W
3733	4822 051 20122		1k2 5% 0,1W
3734	4822 051 20472		4k7 5% 0,1W
3734	4822 051 20122		1k2 5% 0,1W
3735	4822 051 20183		18k 5% 0,1W
3735	4822 051 20223		22k 5% 0,1W
3736	4822 051 20183		18k 5% 0,1W

CDC3 MODULE BOARD

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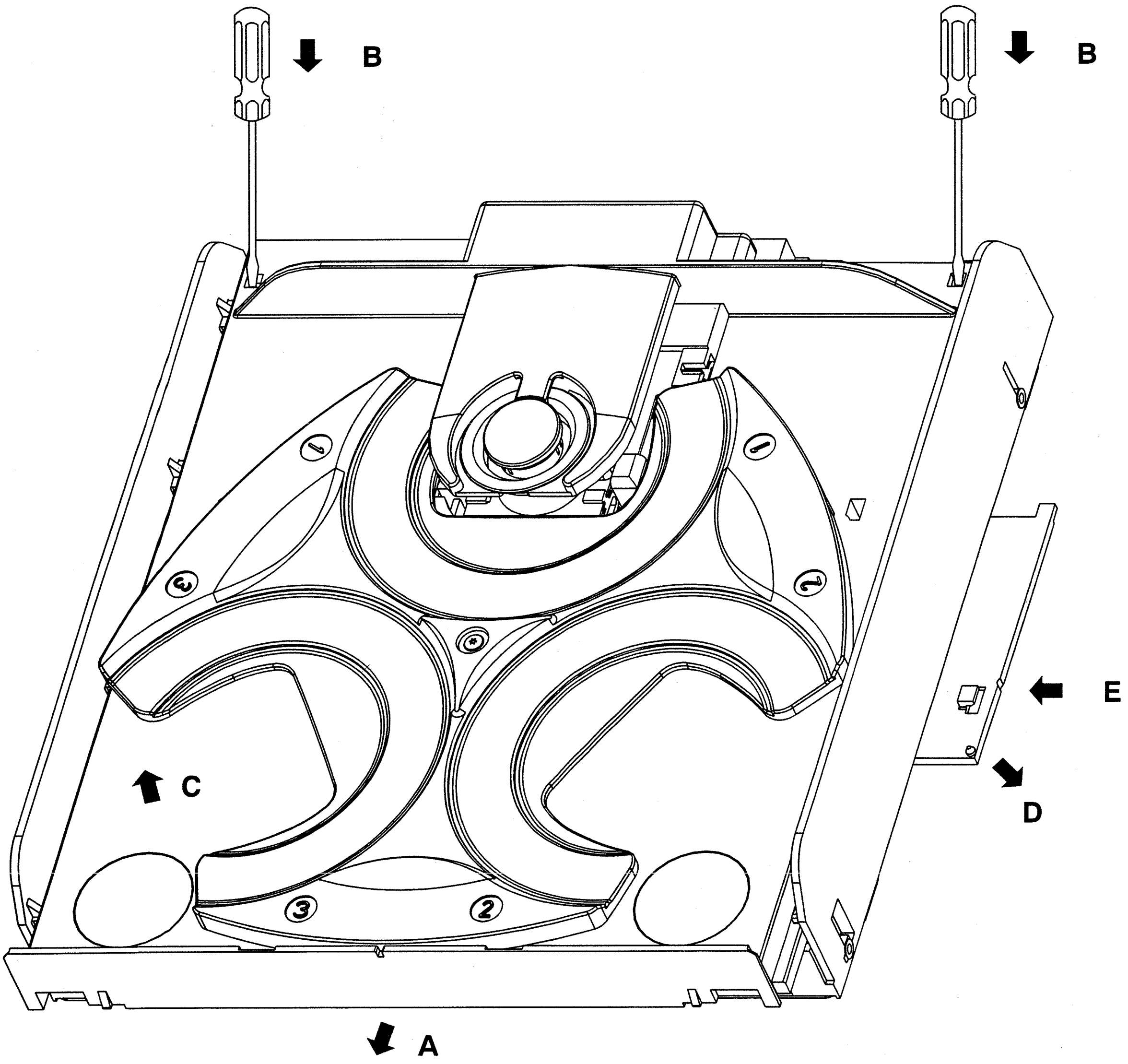
DEMOUNTING HINTS



DEMOUNTING OF DRAWER

⇒ **A** Pull drawer outwards
⇒ **B** Unlock drawer with srcrewdriver
⇒ **C** Lift drawer to demount from chassis

DEMOUNTING OF FLEX PLATE

⇒ **D** Lift plate to unlock pin from bottom plate
⇒ **E** Move plate inwards to demount from bottom plate

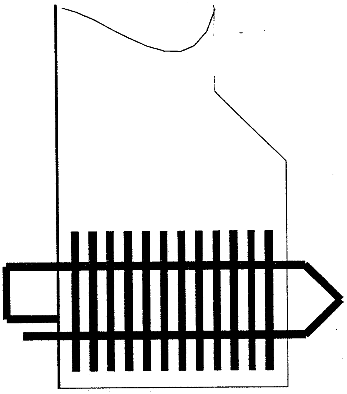
SERVICING HINTS

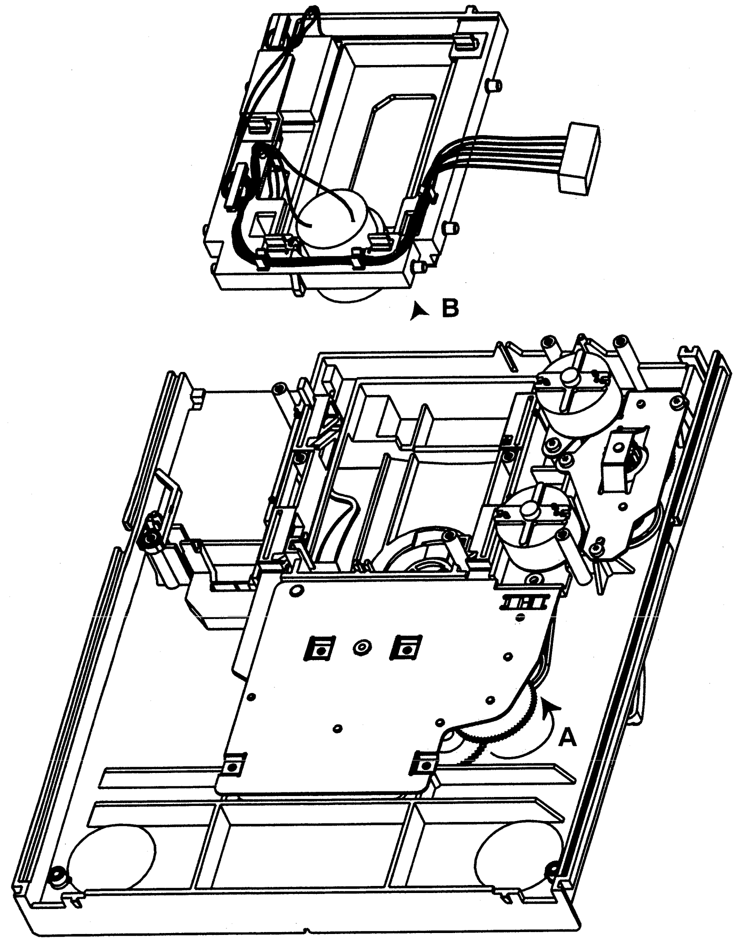
REPLACEMENT OF CDM-12.1

See also exploded view of changer mechanism.

1. Demount flex plate (140).
2. Demount printboard: remove 6 screws and desolder lips of tray motor and carrousel motor.
3. Disconnect flexfoil and JST connector of CDM from PCB. Put paperclip on flexfoil to protect CDM against laser damage.
4. Remove 2 screws 107 and 108 and demount CDM lockings 105 and 106.
5. Turn gearwheel 42 of disc-change-mechanism by finger to move CDM-support in upper position(position of carrousel between 2 discs during changing). **A**
6. Demount CDM-support 95. **B**
7. Replace CDM 100. The wire tree of JST connector has to be desoldered and resoldered on the new CDM.

CDM flex foil





MOUNTING OF CARROUSEL

1. Turn gearwheel 42 of disc change mechanism by finger until CDM is in play position.
2. Mount carrousel 115 so that disc is positioned right on the turntable. Carrousel positionnumber doesn't matter.

CD SERVO SERVICE HINTS

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CDM-ELECTRONICS WHEN CONNECTION IS MADE TO A NEW CDM MECHANISM. THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE
- SWITCH OFF POWER SUPPLY
- ESD PROTECTION
ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CDM mechanism:

1. Disconnect old CDM flexfoil from printed board
2. Connect paper-clip to CDM flexfoil to short-circuit flexfoil (fig. 1)
3. Short-circuit printed board with brass-sheet (4822 321 11197) plugged into the flexfoil connector (fig. 2)
4. Remove old CDM mechanism
5. Position new CDM mechanism in its studs
6. Remove short-circuit from printed board connector
7. Remove short-circuit from flexfoil of new CDM
8. Connect new flexfoil to print connector (fig. 3)

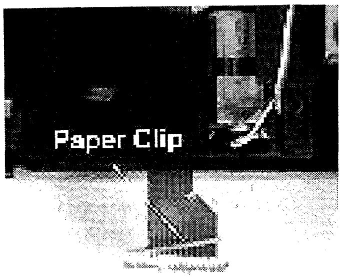


Figure 1

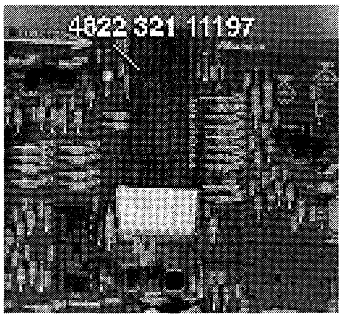


Figure 2

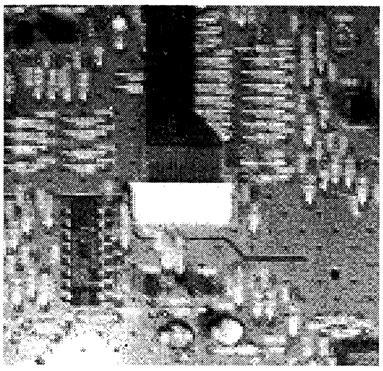
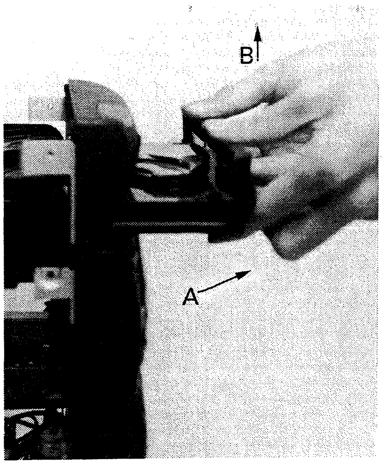
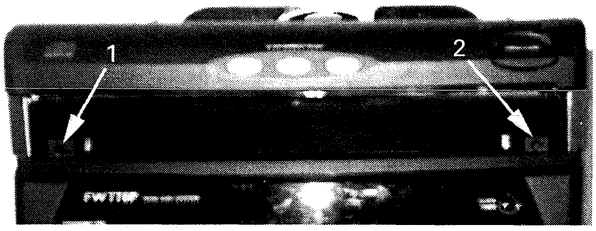


Figure 3

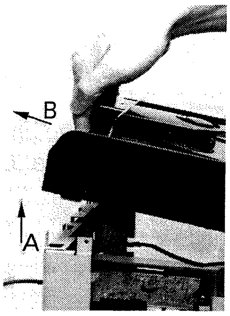
Dismantling Hints for CDC Module



1) Remove the CDC Cover as indicated

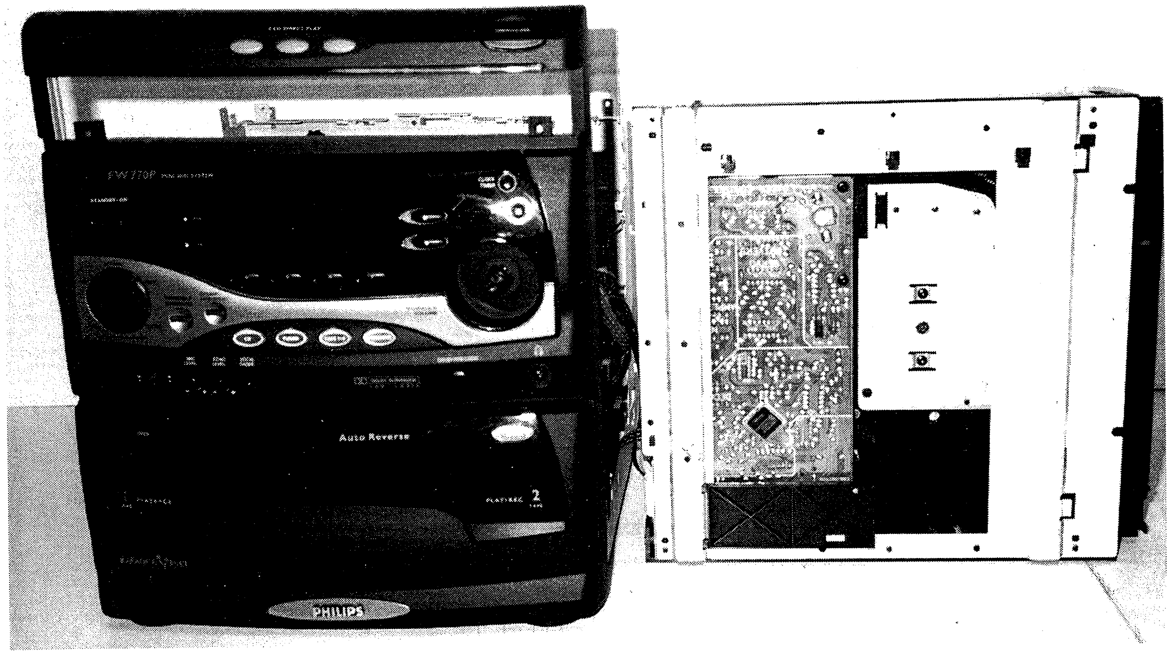


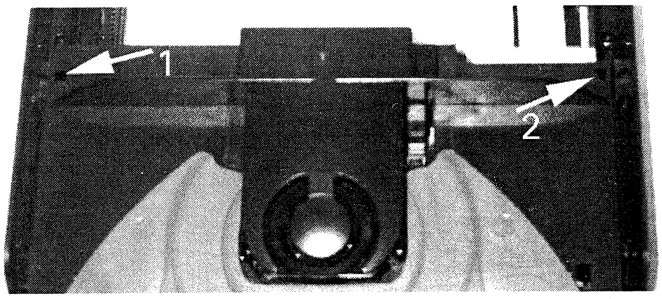
2) Remove the 2 hidden screws



3) Remove the bacj screws, lift-up the Module and pull it out

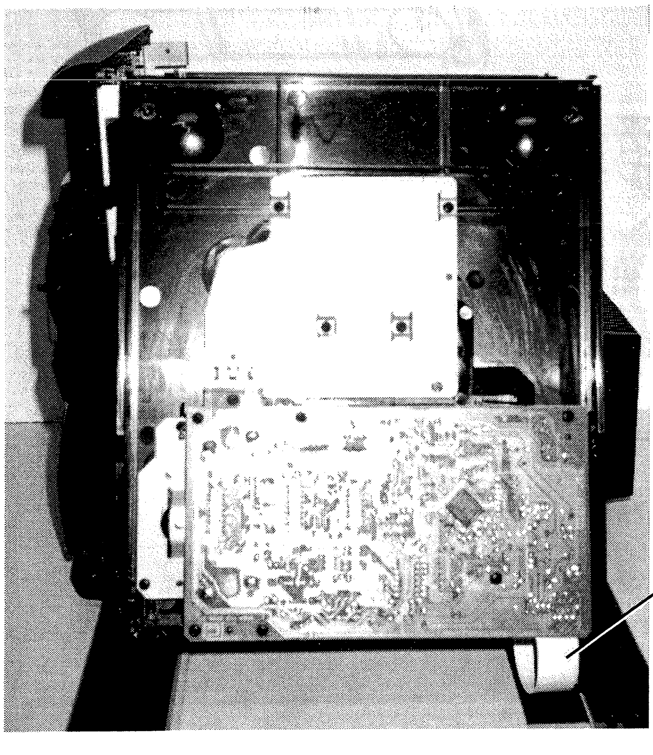
Service Position A





1) Press down the tray catches at position 1 & 2 before pulling the tray out

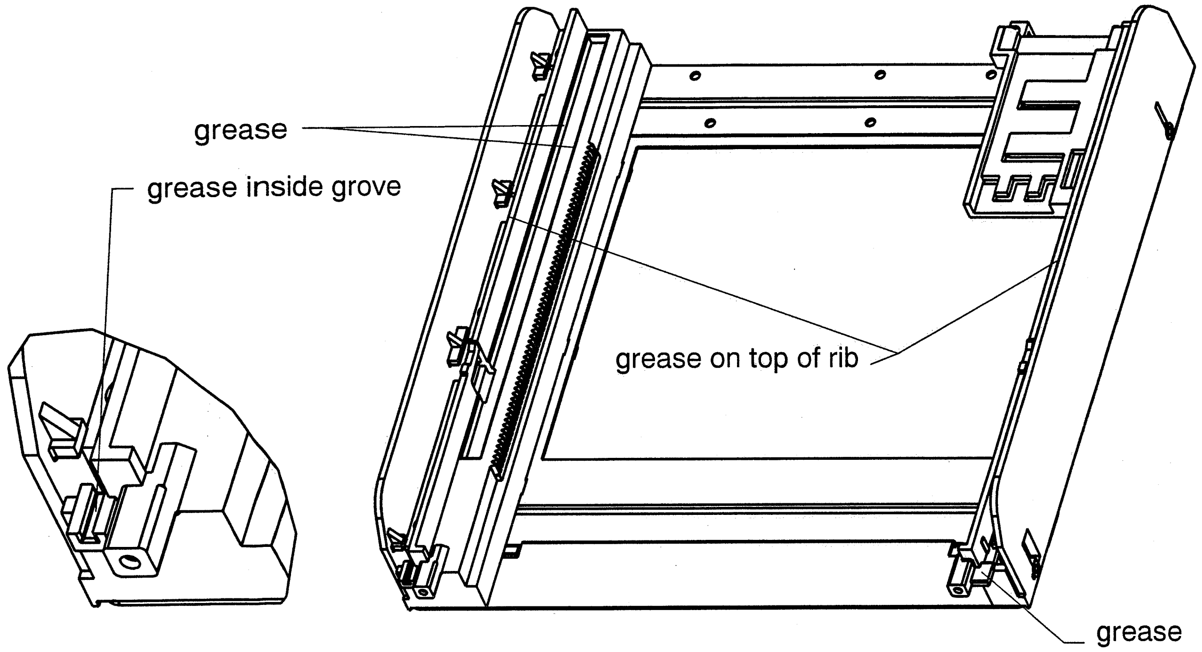
Service Position B



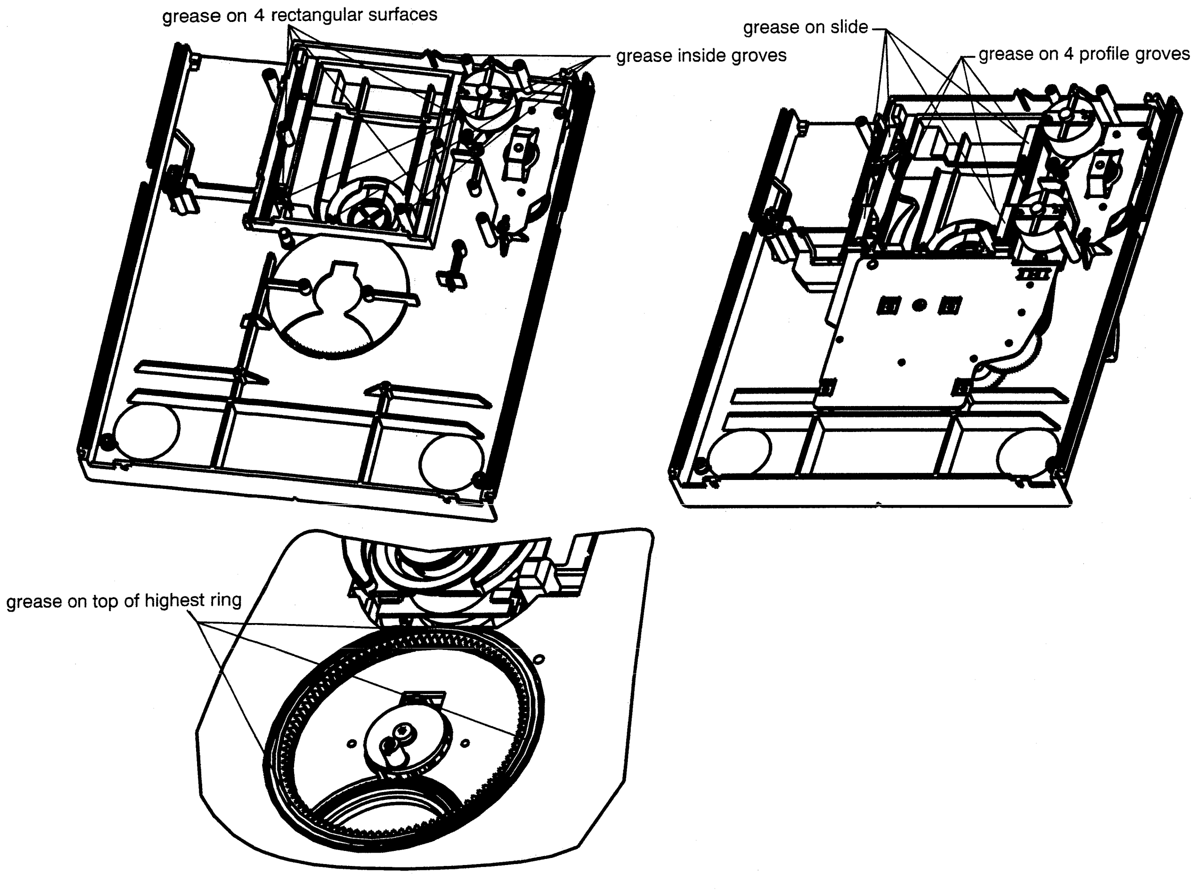
Be careful not to damage this flex cable

LUBRICATING INSTRUCTIONS

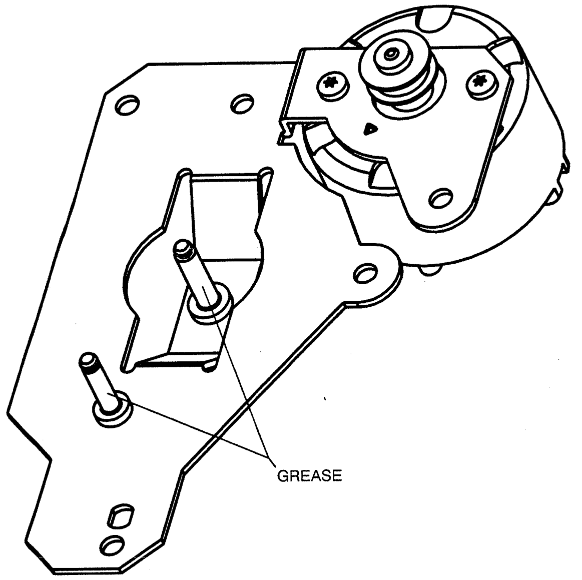
CHASSIS


grease
grease inside grove
grease on top of rib
grease

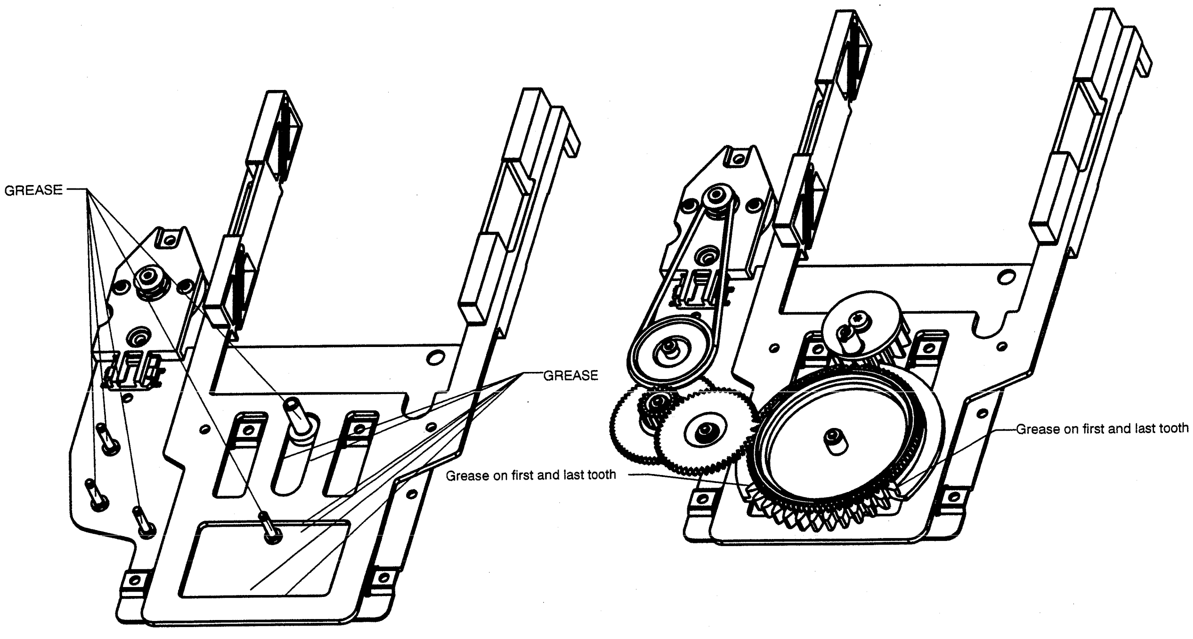
DRAWER


grease on 4 rectangular surfaces
grease inside groves
grease on slide
grease on 4 profile groves
grease on top of highest ring

DRAWER MECHANISM

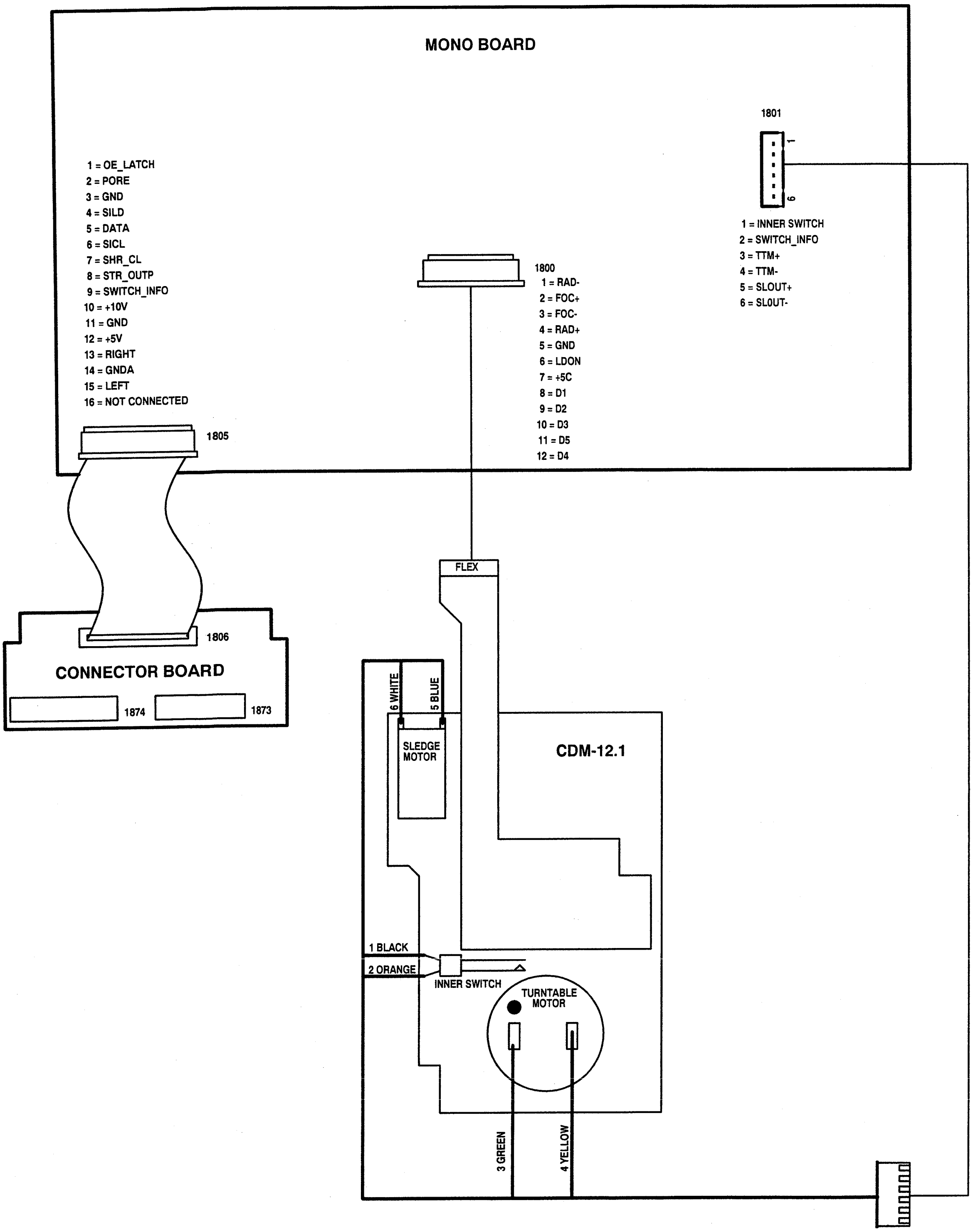


DISC-CHANGE MECHANISM

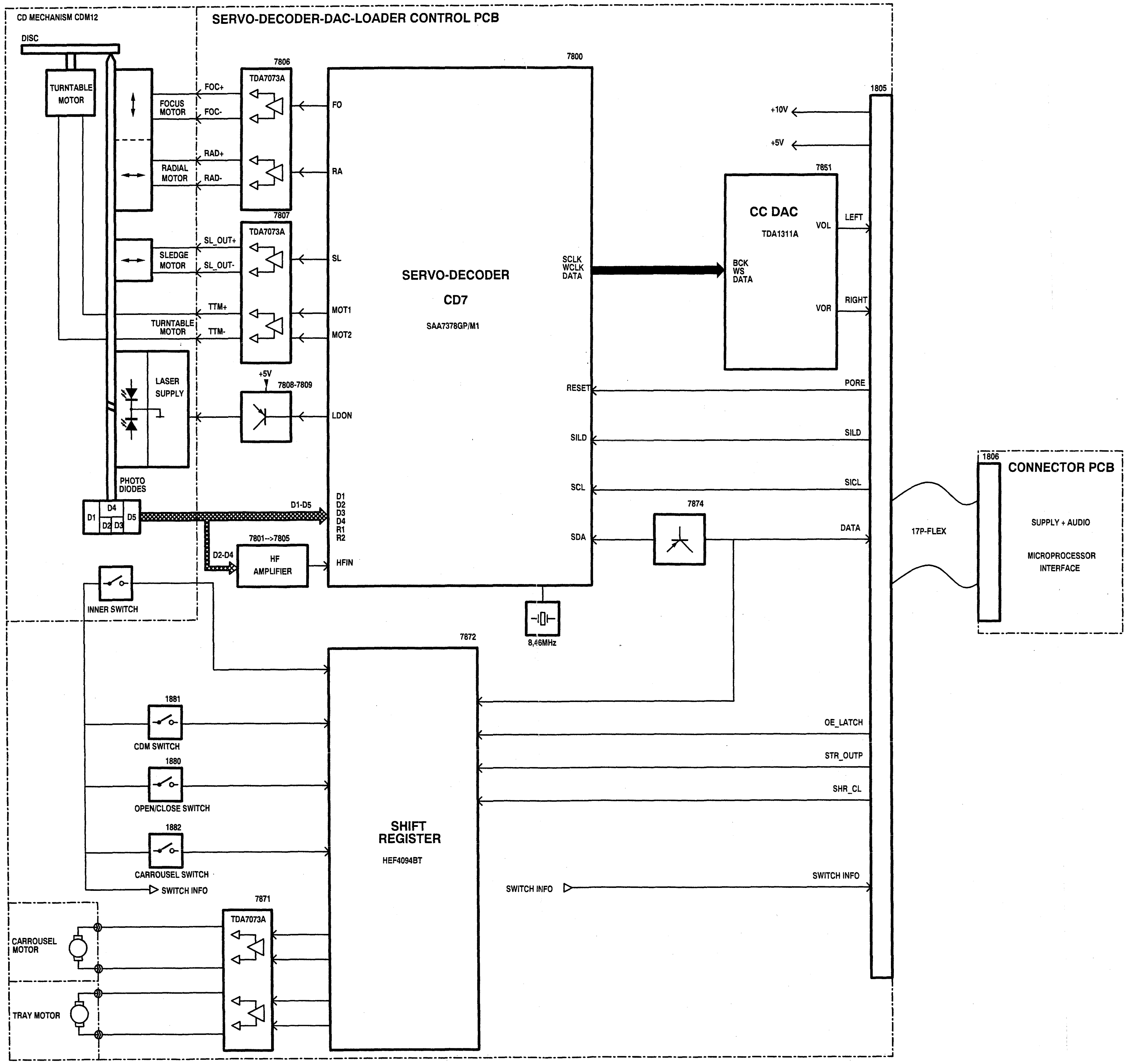

GREASE
GREASE
Grease on first and last tooth
Grease on first and last tooth

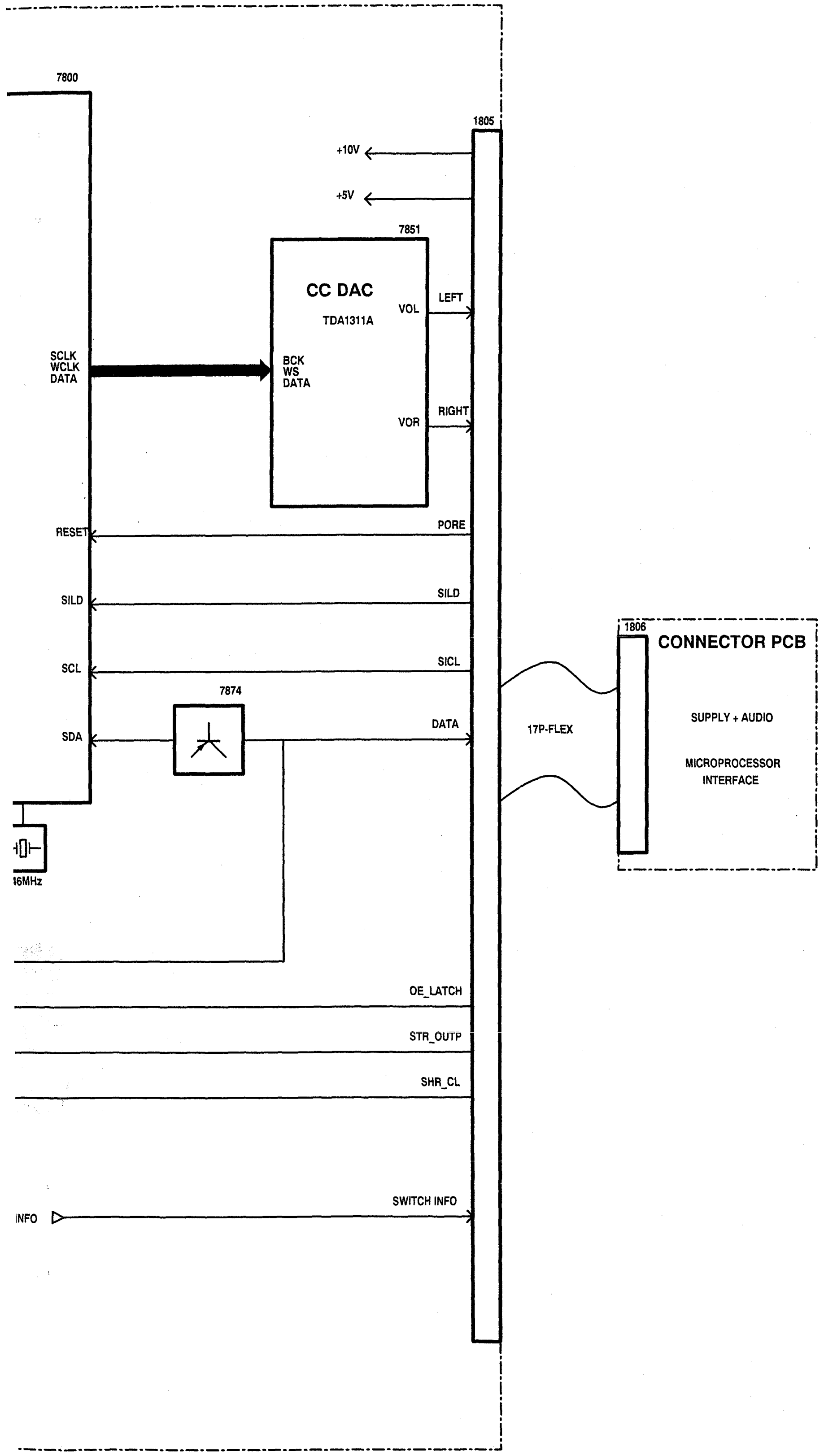
Use only grease **Polylub GLY 801** service codenumber 4822 390 10136

WIRING DIAGRAM

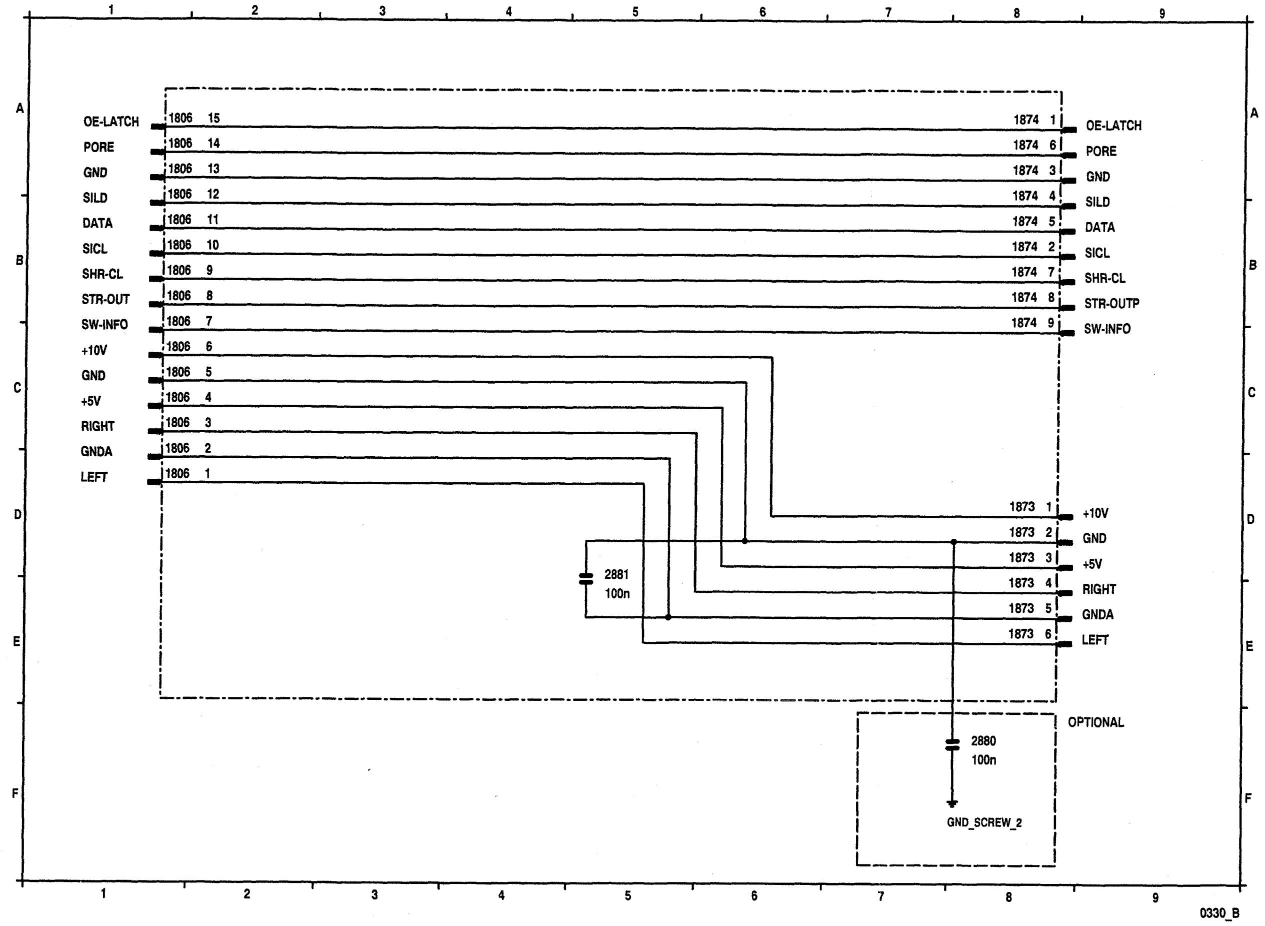

MONO BOARD
1801
1
6
1 = INNER SWITCH
2 = SWITCH_INFO
3 = TTM+
4 = TTM-
5 = SLOUT+
6 = SLOUT-
1 = OE_LATCH
2 = PORE
3 = GND
4 = SILD
5 = DATA
6 = SICL
7 = SHR_CL
8 = STR_OUTP
9 = SWITCH_INFO
10 = +10V
11 = GND
12 = +5V
13 = RIGHT
14 = GNDA
15 = LEFT
16 = NOT CONNECTED
1805
1800
1 = RAD-
2 = FOC+
3 = FOC-
4 = RAD+
5 = GND
6 = LDON
7 = +5C
8 = D1
9 = D2
10 = D3
11 = D5
12 = D4
FLEX
1806
CONNECTOR BOARD
1874
1873
6 WHITE
5 BLUE
SLEDGE MOTOR
CDM-12.1
1 BLACK
2 ORANGE
INNER SWITCH
TURNTABLE MOTOR
3 GREEN
4 YELLOW

BLOCK DIAGRAM

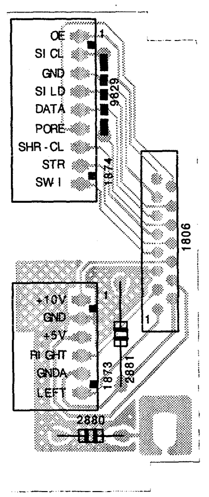

CD MECHANISM CDM12
SERVO-DECODER-DAC-LOADER CONTROL PCB
DISC
TURNTABLE MOTOR
FOCUS MOTOR
FOC+
FOC-
RADIAL MOTOR
RAD+
RAD-
SLEDGE MOTOR
SL_OUT+
SL_OUT-
TURNTABLE MOTOR
TTM+
TTM-
LASER SUPPLY
PHOTO DIODES
D1
D2
D3
D4
D5
D1-D5
D2-D4
7806
TDA7073A
7807
TDA7073A
+5V
7808-7809
7801-->7805
HF AMPLIFIER
7800
FO
RA
SL
MOT1
MOT2
LDON
D1
D2
D3
D4
R1
R2
HFIN
SERVO-DECODER
CD7
SAA7378GP/M1
SCLK
WCLK
DATA
RESET
SILD
SCL
SDA
8,46MHz
7851
CC DAC
TDA1311A
BCK
WS
DATA
VOL
VOR
LEFT
RIGHT
+10V
+5V
1805
PORE
SILD
SICL
DATA
7874
17P-FLEX
1806
CONNECTOR PCB
SUPPLY + AUDIO
MICROPROCESSOR INTERFACE
INNER SWITCH
7872
1881
CDM SWITCH
1880
OPEN/CLOSE SWITCH
1882
CARROUSEL SWITCH
SWITCH INFO
SHIFT REGISTER
HEF4094BT
OE_LATCH
STR_OUTP
SHR_CL
SWITCH INFO
SWITCH INFO
7871
TDA7073A
CARROUSEL MOTOR
TRAY MOTOR


7800
1805
+10V
+5V
7851
CC DAC
TDA1311A
VOL
LEFT
VOR
RIGHT
SCLK
WCLK
DATA
BCK
WS
DATA
RESET
PORE
SILD
SILD
SCL
SICL
7874
SDA
DATA
16MHz
17P-FLEX
1806
CONNECTOR PCB
SUPPLY + AUDIO
MICROPROCESSOR INTERFACE
OE_LATCH
STR_OUTP
SHR_CL
INFO
SWITCH INFO

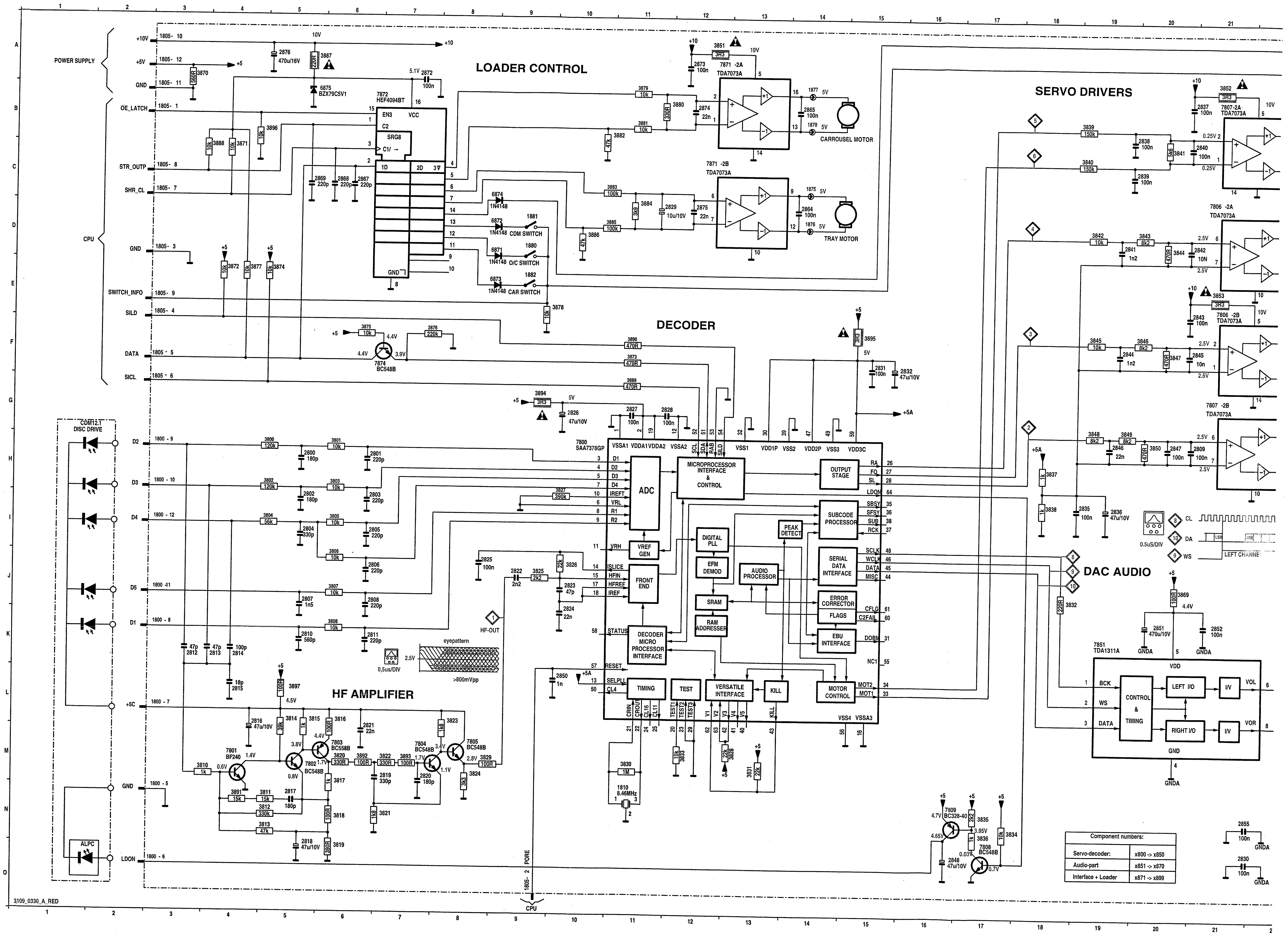
CONNECTOR WIRING AND LAYOUT


OE-LATCH
PORE
GND
SILD
DATA
SICL
SHR-CL
STR-OUT
SW-INFO
+10V
GND
+5V
RIGHT
GNDA
LEFT
1806 15
1806 14
1806 13
1806 12
1806 11
1806 10
1806 9
1806 8
1806 7
1806 6
1806 5
1806 4
1806 3
1806 2
1806 1
1874 1
1874 6
1874 3
1874 4
1874 5
1874 2
1874 7
1874 8
1874 9
OE-LATCH
PORE
GND
SILD
DATA
SICL
SHR-CL
STR-OUTP
SW-INFO
1873 1
1873 2
1873 3
1873 4
1873 5
1873 6
+10V
GND
+5V
RIGHT
GNDA
LEFT
2881
100n
2880
100n
OPTIONAL
GND_SCREW_2
0330_B

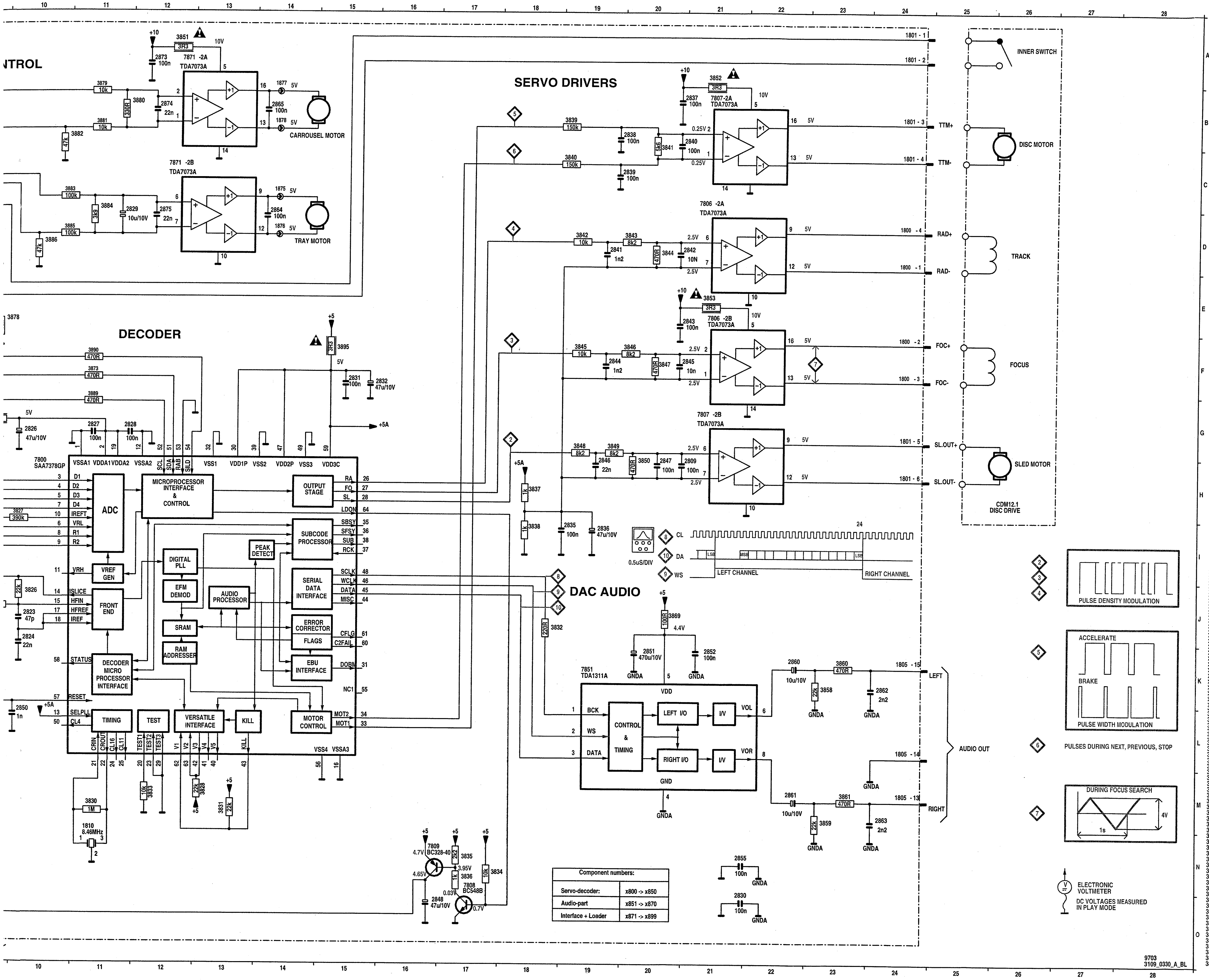
1806	D 1
1806	D 1
1806	C 1
1806	C 1
1806	C 1
1806	C 1
1806	C 1
1806	B 1
1806	B 1
1806	B 1
1806	B 1
1806	B 1
1806	A 1
1806	A 1
1806	A 1
1873	D 8
1873	D 8
1873	D 8
1873	E 8
1873	E 8
1873	E 8
1874	A 8
1874	B 8
1874	A 8
1874	B 8
1874	B 8
1874	A 8
1874	B 8
1874	B 8
1874	C 8
2880	F 8
2881	D 5


OE
SI CL
GND
SI LD
DATA
PORE
SHR - CL
STR
SW I
9829
1874
1806
+10V
GND
+5V
RIGHT
GNDA
LEFT
1873
2881
2880

CDC-3 CIRCUIT

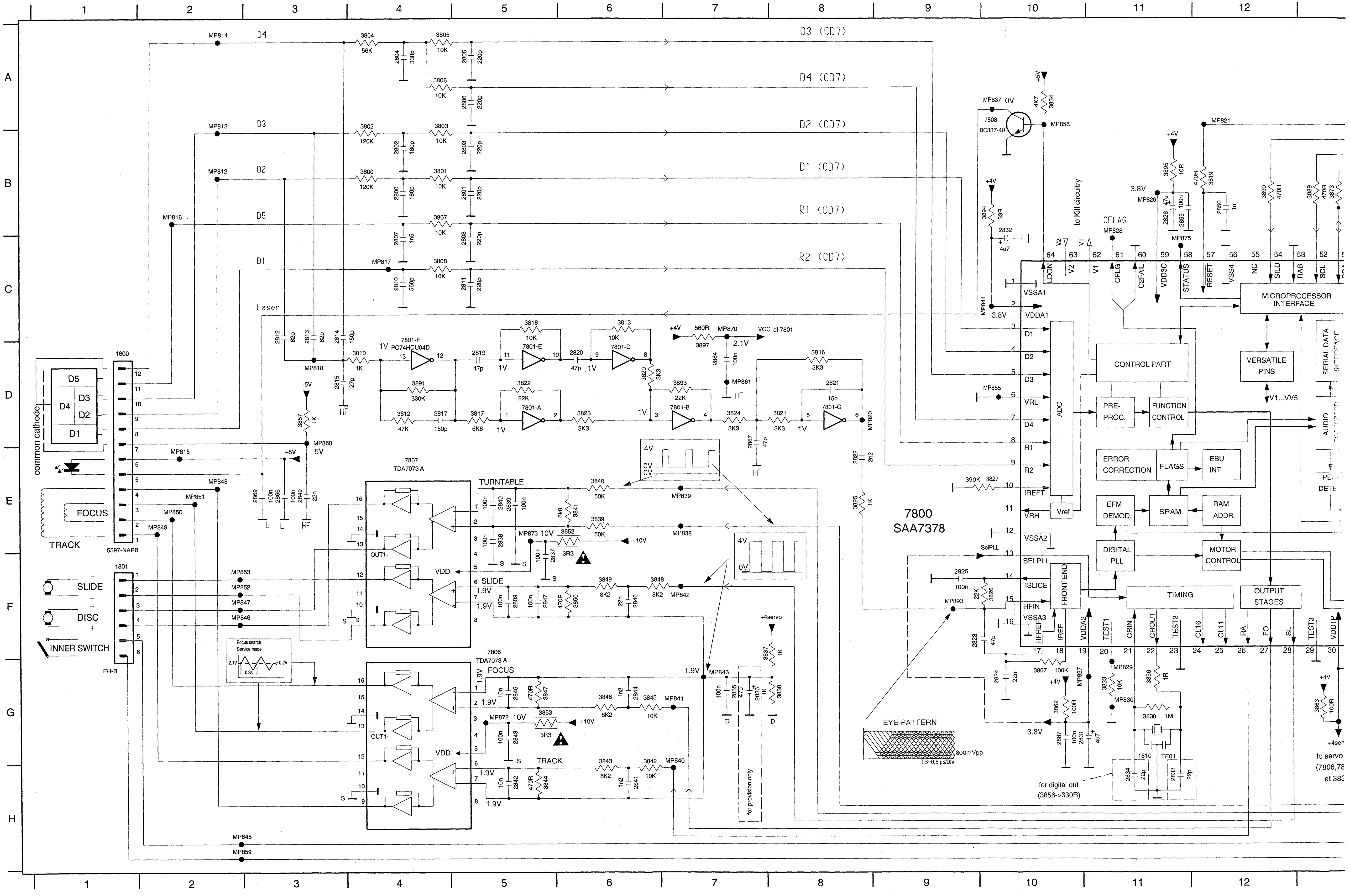

POWER SUPPLY
CPU
LOADER CONTROL
DECODER
SERVO DRIVERS
HF AMPLIFIER
DAC AUDIO
CDM12.1 DISC DRIVE
ALPC
7872 HEF4094BT
7871 -2A TDA7073A
7871 -2B TDA7073A
CARROUSEL MOTOR
TRAY MOTOR
CDM SWITCH
O/C SWITCH
CAR SWITCH
7800 SAA7378GP
ADC
MICROPROCESSOR INTERFACE & CONTROL
OUTPUT STAGE
SUBCODE PROCESSOR
PEAK DETECT
DIGITAL PLL
EFM DEMOD
AUDIO PROCESSOR
SERIAL DATA INTERFACE
VREF GEN
FRONT END
SRAM
RAM ADDRESSER
ERROR CORRECTOR
FLAGS
EBU INTERFACE
DECODER MICRO PROCESSOR INTERFACE
TIMING
TEST
VERSATILE INTERFACE
KILL
MOTOR CONTROL
7807 -2A TDA7073A
7806 -2A TDA7073A
7806 -2B TDA7073A
7807 -2B TDA7073A
7851 TDA1311A
CONTROL & TIMING
LEFT I/O
RIGHT I/O
eyepattern
HF-OUT
1810 8.46MHz
0.5uS/DIV
LEFT CHANNEL
3109_0330_A_RED

Component numbers:	
Servo-decoder:	x800 -> x850
Audio-part	x851 -> x870
Interface + Loader	x871 -> x899

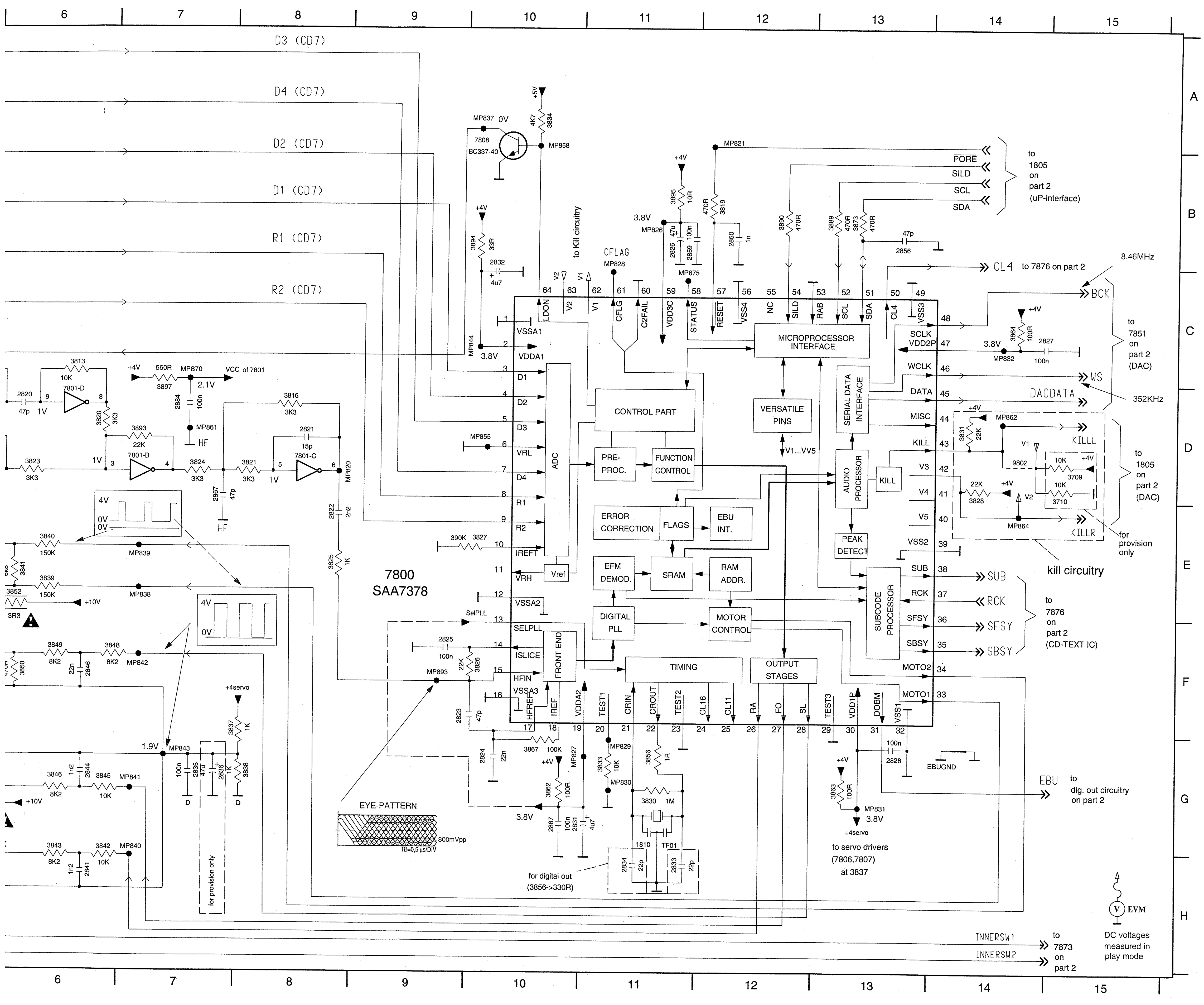

NTROL
SERVO DRIVERS
DECODER
DAC AUDIO
CARROUSEL MOTOR
TRAY MOTOR
INNER SWITCH
DISC MOTOR
TRACK
FOCUS
SLED MOTOR
CDM12.1
DISC DRIVE
TTM+
TTM-
RAD+
RAD-
FOC+
FOC-
SL.OUT+
SL.OUT-
7871 -2A TDA7073A
7871 -2B TDA7073A
7807-2A TDA7073A
7806 -2A TDA7073A
7806 -2B TDA7073A
7807 -2B TDA7073A
7800 SAA7378GP
7851 TDA1311A
7809 BC328-40
7808 BC548B
1810 8.46MHz
ADC
MICROPROCESSOR INTERFACE & CONTROL
OUTPUT STAGE
SUBCODE PROCESSOR
DIGITAL PLL
PEAK DETECT
SERIAL DATA INTERFACE
EFM DEMOD
AUDIO PROCESSOR
VREF GEN
FRONT END
SRAM
ERROR CORRECTOR
FLAGS
RAM ADDRESSER
DECODER MICRO PROCESSOR INTERFACE
EBU INTERFACE
TIMING
TEST
VERSATILE INTERFACE
KILL
MOTOR CONTROL
CONTROL & TIMING
LEFT I/O
RIGHT I/O
I/V
VDD
GND
BCK
WS
DATA
VOL
VOR
LEFT
RIGHT
AUDIO OUT
LEFT CHANNEL
RIGHT CHANNEL
LSB
MSB
0.5uS/DIV
CL
DA
WS
PULSE DENSITY MODULATION
ACCELERATE
BRAKE
PULSE WIDTH MODULATION
PULSES DURING NEXT, PREVIOUS, STOP
DURING FOCUS SEARCH
4V
1s
ELECTRONIC VOLTMETER
DC VOLTAGES MEASURED IN PLAY MODE
Component numbers:
Servo-decoder: x800 -> x850
Audio-part x851 -> x870
Interface + Loader x871 -> x899
9703
3109_0330_A_BL

1800	D24
1800	F24
1800	F24
1800	D24
1800	N 3
1800	O 3
1800	L 3
1800	K 3
1800	H 3
1800	H 3
1800	J 3
1800	I 3
1801	A24
1801	A24
1801	B24
1801	C24
1801	G24
1801	H24
1805	B 3
1805	O 9
1805	D 3
1805	E 3
1805	F 3
1805	G 3
1805	C 3
1805	C 3
1805	E 3
1805	A 3
1805	B 3
1805	A 3
1805	M24
1805	L24
1805	K24
1810	N11
1880	D 9
1881	D 9
1882	E 9
2800	H 5
2801	H 6
2802	I 5
2803	I 6
2804	I 5
2805	I 6
2806	J 6
2807	J 5
2808	J 6
2809	H21
2810	K 5
2811	K 6
2812	K 3
2813	K 4
2814	K 4
2815	L 4
2816	L 4
2817	N 5
2818	O 5
2819	M 7
2820	M 7
2821	M 6
2822	J 9
2823	J10
2824	J10
2825	J 8
2826	G10
2827	G11
2828	G11
2829	D11
2830	O21
2831	F15
2832	F16
2835	I19
2836	I19
2837	B20
2838	B19
2839	C19
2840	B20
2841	D19
2842	D20
2843	E20
2844	F19
2845	F20
2846	H19
2847	H20
2848	O16
2850	L10
2851	K20
2852	K21
2855	N21
2860	K22
2861	M22
2862	K24
2863	M24
2864	D14
2865	B14
2867	C 6
2868	C 6
2869	C 5
2872	A 7
2873	A12
2874	B12
2875	D12
2876	A 5
3800	H 5
3801	H 6
3802	H 5
3803	H 6
3804	I 5
3805	I 6
3806	J 6
3807	J 6
3808	K 6
3810	M 4
3811	N 5
3812	N 5
3813	N 5
3814	L 5
3815	L 5
3816	L 6
3817	M 6
3818	N 6
3819	O 6
3820	M 6
3821	N 7
3822	M 7
3823	L 8
3824	M 8
3825	J 9
3826	J10
3827	H10
3828	M13
3829	M 8
3830	M11
3831	M13
3832	J18
3833	M12
3834	N18
3835	N17
3836	N17
3837	H18
3838	I18
3839	B19
3840	C19
3841	C20
3842	D19
3843	D20
3844	D20
3845	F19
3846	F20
3847	F20
3848	G19
3849	G19
3850	H20
3851	A12
3852	A21
3853	E21
3858	K23
3859	M23
3860	K23
3861	M23
3869	J20
3870	A 3
3871	C 4
3872	E 4
3873	F11
3874	E 5
3875	F 6
3876	F 7
3877	E 4
3878	E 9
3879	B11
3880	B11
3881	B11
3882	B10
3883	C10
3884	D11
3885	D10
3886	D10
3887	A 5
3888	C 4
3889	G11
3890	F11
3891	N 4
3892	M 6
3893	M 7
3894	G 9
3895	F15
3896	B 4
3897	L 5
6871	D 9
6872	D 9
6873	E 9
6874	C 9
6875	B 6
7800	H10
7801	M 4
7802	M 5
7803	M 6
7804	M 7
7805	M 8
7806	E21
7806	C21
7807	B21
7807	G21
7808	N17
7809	N17
7851	K19
7871	A12
7871	C12
7872	B 6
7874	F 6

Circuit Diagram Main Board part1

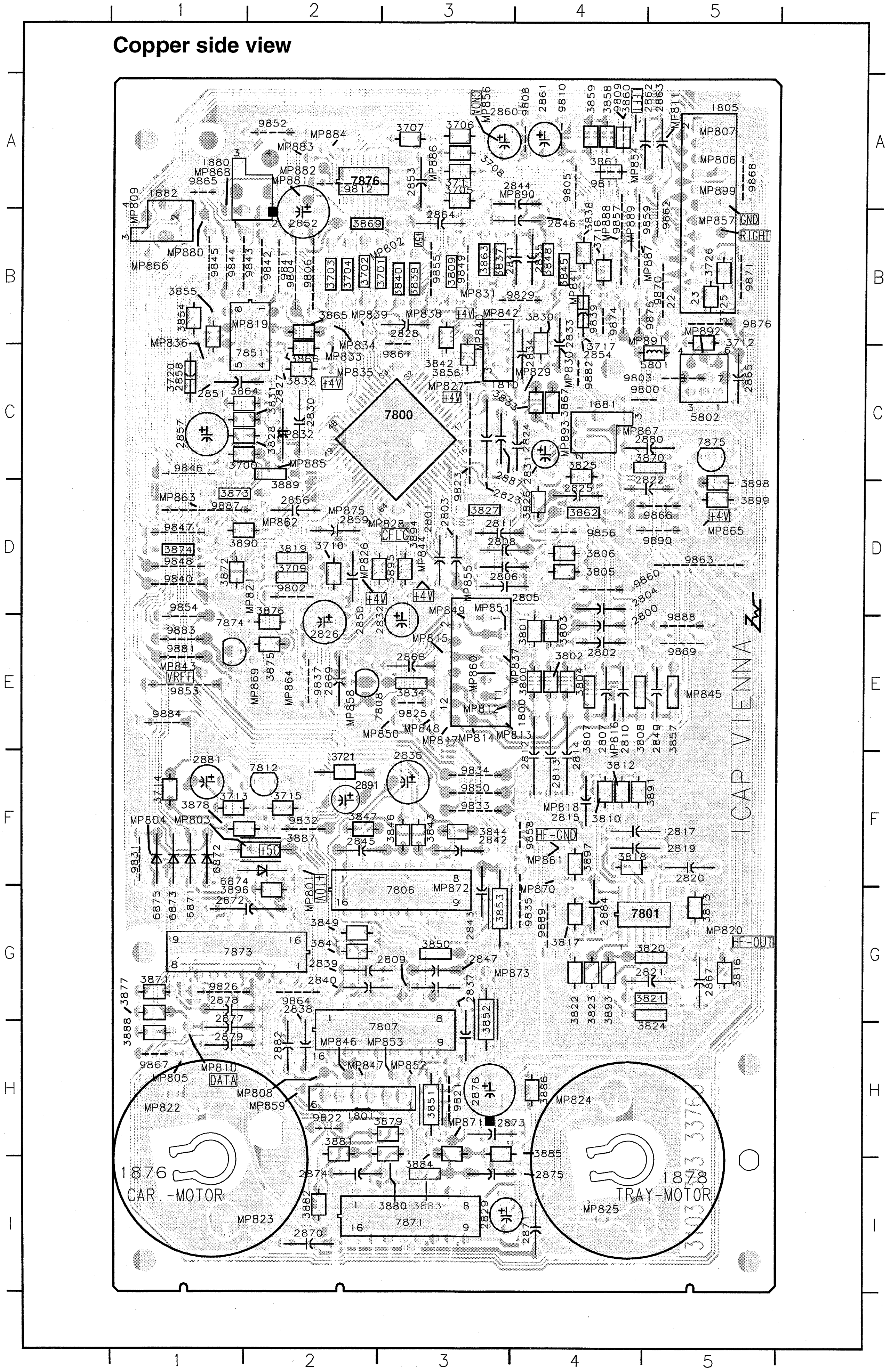


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
MP814
D4
3804
56K
2804
330p
3805
10K
2805
220p
D3 (CD7)
3806
10K
2806
220p
D4 (CD7)
MP813
D3
3802
120K
2802
180p
3803
10K
2803
220p
D2 (CD7)
MP812
D2
3800
120K
2800
180p
3801
10K
2801
220p
D1 (CD7)
MP816
D5
3807
10K
2807
1n5
2808
220p
R1 (CD7)
D1
MP817
3808
10K
2810
560p
2811
220p
R2 (CD7)
Laser
2812
82p
2813
82p
2814
150p
MP818
3810
1K
2815
27p
HF
1V
7801-F
PC74HCU04D
2819
47p
3818
10K
7801-E
2820
47p
3813
10K
7801-D
3820
3K3
3891
330K
3812
47K
2817
150p
3817
6K8
3822
22K
7801-A
3823
3K3
3893
22K
7801-B
3824
3K3
3821
3K3
7801-C
2821
15p
3816
3K3
MP820
2867
47p
2822
2n2
3825
1K
+4V
560R
3897
MP870
2.1V
VCC of 7801
2884
100n
MP861
+5V
3857
1K
MP860
5V
MP815
MP848
MP851
MP850
MP849
2869
100n
2866
100n
2849
22n
1800
5597-NAPB
common cathode
D5
D4
D3
D2
D1
FOCUS
TRACK
7807
TDA7073 A
TURNTABLE
2840
100n
2839
100n
2838
100n
3841
6K8
3840
150K
MP839
3839
150K
MP838
MP873 10V
3852
3R3
+10V
2837
OUT1-
VDD
SLIDE
1.9V
2809
100n
2847
100n
3850
470R
3849
8K2
2846
22n
3848
8K2
MP842
4V
0V
1801
EH-B
SLIDE
DISC
INNER SWITCH
MP853
MP852
MP847
MP846
Focus search
Service mode
2.1V
0.3s
+0.2V
7806
TDA7073 A
FOCUS
2845
10n
3847
470R
3846
8K2
2844
1n2
3845
10K
MP841
MP872 10V
3853
3R3
2843
100n
TRACK
3843
8K2
3842
10K
MP840
2842
10n
3844
470R
2841
1n2
MP843
2835
100n
2836
470
3837
1K
3838
+4servo
for provision only
MP845
MP859
MP837 0V
7808
BC337-40
3834
4K7
+5V
MP858
to Kill circuitry
+4V
3894
33R
2832
4u7
CFLAG
MP828
3.8V
MP826
2826
47u
2859
100n
3895
10R
MP875
3819
470R
2850
1n
MP821
3890
470R
3889
470R
3873
LDON
V2
V1
CFLG
C2FAIL
VDD3C
STATUS
RESET
VSS4
NC
SILD
RAB
SCL
VSSA1
VDDA1
MP844
MP855
VRL
R1
R2
390K
3827
IREFT
VRH
VSSA2
SELPLL
SelPLL
2825
100n
ISLICE
HFIN
MP893
3826
22K
VSSA3
HFREF
IREF
VDDA2
TEST1
CRIN
CROUT
TEST2
CL16
CL11
RA
FO
SL
TEST3
VDD1P
ADC
Vref
CONTROL PART
PRE-PROC.
FUNCTION CONTROL
ERROR CORRECTION
FLAGS
EBU INT.
EFM DEMOD.
SRAM
RAM ADDR.
DIGITAL PLL
MOTOR CONTROL
FRONT END
TIMING
OUTPUT STAGES
MICROPROCESSOR INTERFACE
VERSATILE PINS
V1...VV5
SERIAL DATA INTERFACE
AUDIO
7800
SAA7378
2823
47p
2824
22n
3867
100K
MP827
3862
100R
2887
2831
100n
4u7
MP829
3833
10K
MP830
3856
1R
3830
1M
1810
TF01
2834
22p
2833
22p
for digital out
(3856->330R)
EYE-PATTERN
800mVpp
TB=0,5 µs/DIV
3863
100R
+4ser
to servo
(7806,7E
at 38


7800
SAA7378
D3 (CD7)
D4 (CD7)
D2 (CD7)
D1 (CD7)
R1 (CD7)
R2 (CD7)
ADC
CONTROL PART
PRE-PROC.
FUNCTION CONTROL
MICROPROCESSOR INTERFACE
VERSATILE PINS
SERIAL DATA INTERFACE
AUDIO PROCESSOR
KILL
PEAK DETECT
ERROR CORRECTION
FLAGS
EBU INT.
EFM DEMOD.
SRAM
RAM ADDR.
DIGITAL PLL
MOTOR CONTROL
FRONT END
TIMING
OUTPUT STAGES
SUBCODE PROCESSOR
Vref
to Kill circuitry
to 1805 on part 2 (uP-interface)
PORE
SILD
SCL
SDA
CL4 to 7876 on part 2
8.46MHz
BCK
WS
DACDATA
352KHz
to 7851 on part 2 (DAC)
KILLL
KILLR
to 1805 on part 2 (DAC)
for provision only
kill circuitry
SUB
RCK
SFSY
SBSY
to 7876 on part 2 (CD-TEXT IC)
EBU
to dig. out circuitry on part 2
to servo drivers (7806,7807) at 3837
INNERSW1
INNERSW2
to 7873 on part 2
EVM
DC voltages measured in play mode
EYE-PATTERN
600mVpp
TB=0,5 µs/DIV
for digital out (3856->330R)
for provision only
7808
BC337-40
VCC of 7801
7801-A
7801-B
7801-C
7801-D
CFLAG
4V
0V
HF
EBUGND
A
B
C
D
E
F
G
H
6
7
8
9
10
11
12
13
14
15

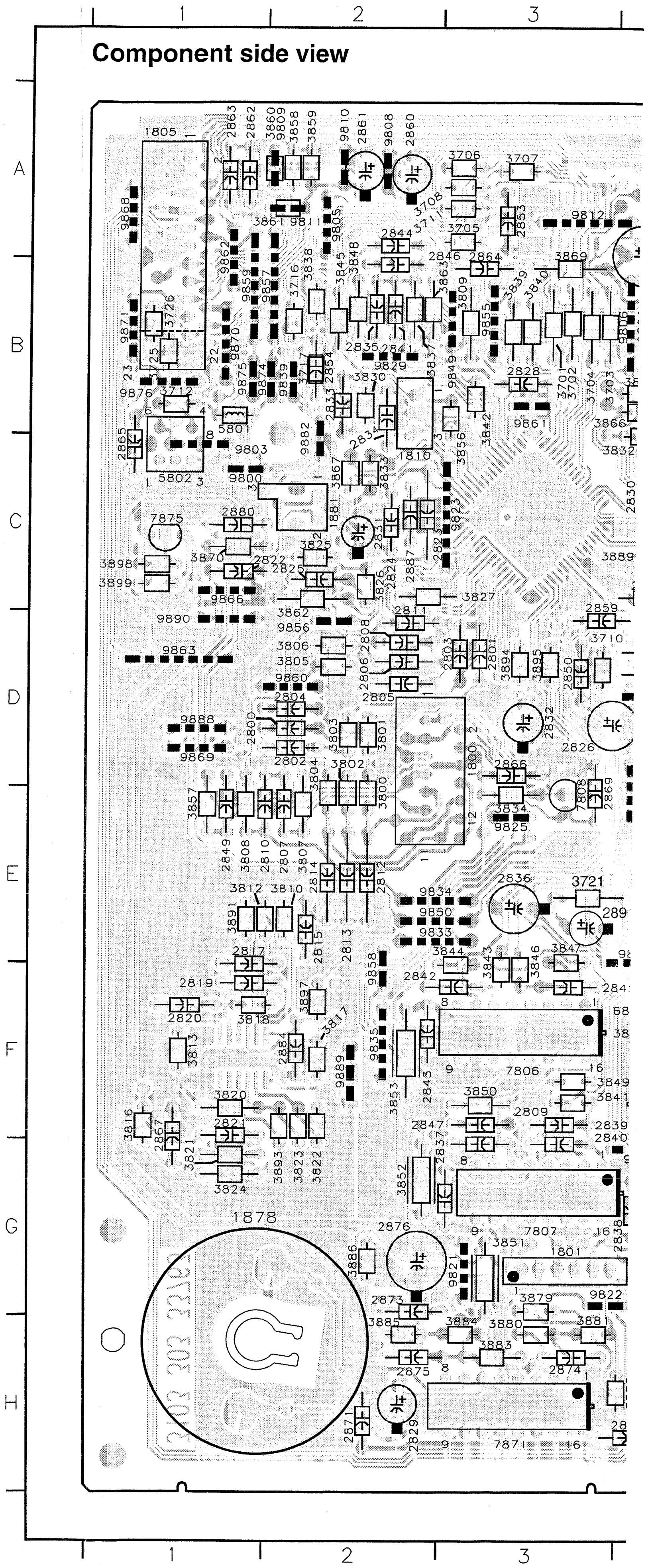
1800	D1
1801	F1
1810	G11
2800	B4
2801	B5
2802	B4
2803	B5
2804	A4
2805	A5
2806	A5
2807	C4
2808	C5
2809	F5
2810	C4
2811	C5
2812	C3
2813	C3
2814	C3
2815	D3
2817	D4
2819	D5
2820	D6
2821	D8
2822	E8
2823	F9
2824	G9
2825	F9
2826	B11
2827	C14
2828	G13
2831	G10
2832	B10
2833	H11
2834	H11
2835	G7
2836	G7
2837	F5
2838	E5
2839	E5
2840	E5
2841	H6
2842	H5
2843	G5
2844	G6
2845	G5
2846	F6
2847	F5
2849	E3
2850	B12
2856	B13
2859	B11
2866	E3
2867	D7
2869	E3
2884	D7
2887	G10
3709	D15
3710	D15
3800	B4
3801	B4
3802	A4
3803	A4
3804	A4
3805	A4
3806	A4
3807	B4
3808	C4
3810	D4
3812	D4
3813	C6
3816	D8
3817	D5
3818	C5
3819	B12
3820	D6
3821	D8
3822	D5
3823	D6
3824	D7
3825	E8
3826	F10
3827	E10
3828	D14
3830	G11
3831	D14
3833	G11
3834	B10
3837	F8
3838	G8
3839	E6
3840	E6
3841	E6
3842	G6
3843	G6
3844	H5
3845	G6
3846	G6
3847	G5
3848	F6
3849	F6
3850	F6
3852	E6
3853	G5
3856	G11
3857	D3
3862	G10
3863	G13
3864	C14
3867	G10
3873	B13
3889	B13
3890	B12
3891	D4
3893	D7
3894	B10
3895	B11
3897	D7
7800	E9
7801-A	D5
7801-B	D7
7801-C	D8
7801-D	D6
7801-E	D5
7801-F	D4
7806	G5
7807	E4
7808	B10
9802	D14
MP812	B2
MP813	A2
MP814	A2
MP815	E2
MP816	B2
MP817	C4
MP818	D3
MP820	D8
MP821	B12
MP826	B11
MP827	G10
MP828	B11
MP829	G11
MP830	G11
MP831	G13
MP832	C14
MP837	B10
MP838	E6
MP839	E6
MP840	G7
MP841	G7
MP842	F7
MP843	G7
MP844	C10
MP845	H3
MP846	F2
MP847	F2
MP848	E2
MP849	E2
MP850	E2
MP851	E2
MP852	F2
MP853	F2
MP855	D10
MP858	B10
MP859	H3
MP860	D3
MP861	D7
MP862	D14
MP864	E14
MP870	C7
MP872	G5
MP873	E5
MP875	C11
MP893	F9

Copper side view

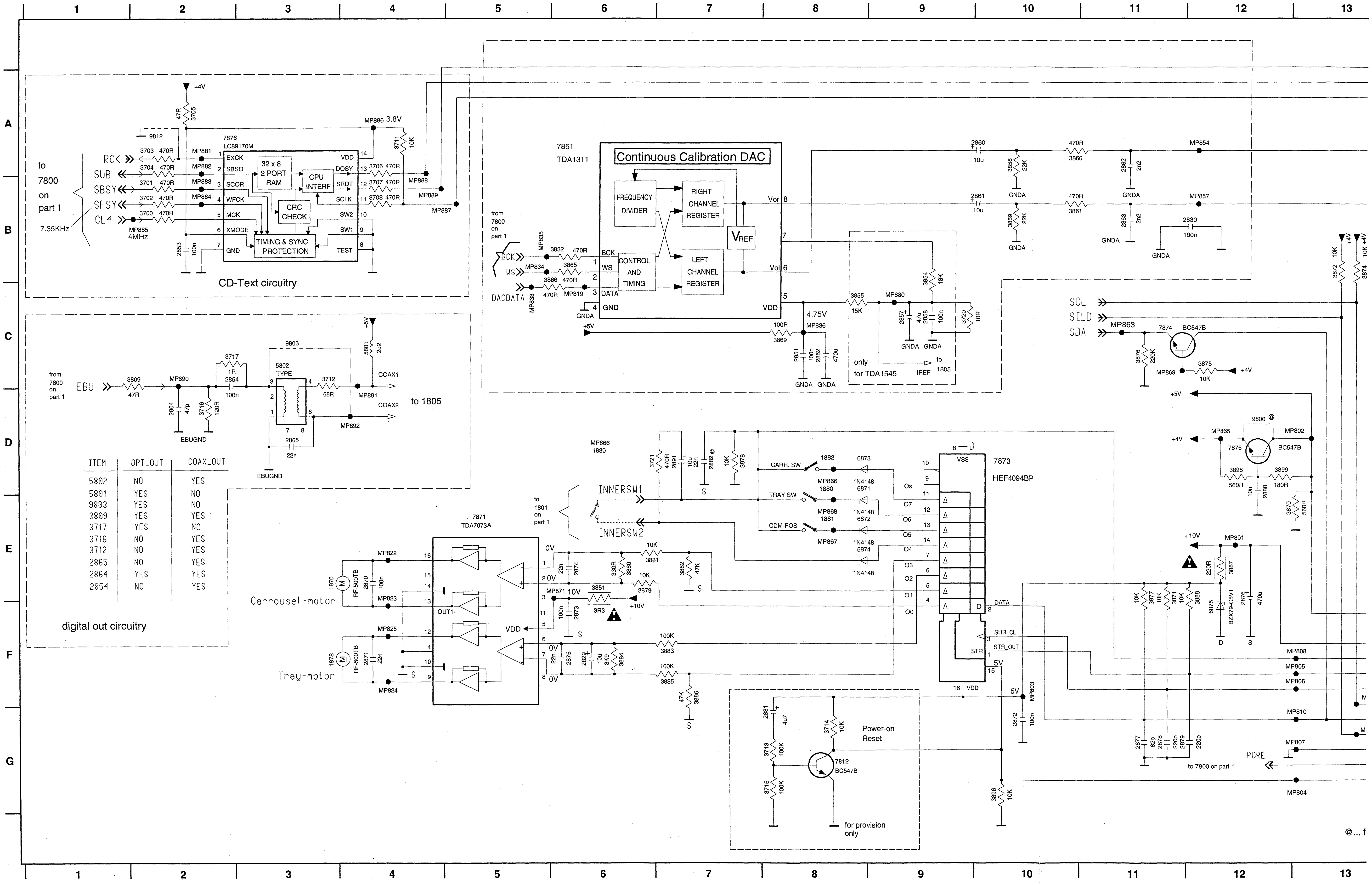

1
2
3
4
5
A
B
C
D
E
F
G
H
I
7800
7876
7851
7806
7807
7873
7871
7801
7812
7808
7874
7875
1805
1810
1881
1882
1880
1801
5801
5802
MP860
GND
RIGHT
+4V
+5V
VREF
DATA
CFLG
HF-GND
HF-OUT
ICAP VIENNA
1876
CAR.-MOTOR
1878
TRAY-MOTOR
3303 303 3376

1800	E3
1801	H2
1805	B5
1810	C3
1876	I1
1878	I4
1880	B2
1881	C4
1882	B1
2800	D4
2801	D3
2802	E4
2803	D3
2804	D4
2805	D3
2806	D3
2807	E4
2808	D3
2809	G3
2810	E4
2811	D3
2812	F4
2813	F4
2814	F4
2815	F4
2817	F4
2819	F4
2820	F5
2821	G5
2822	D5
2823	C3
2824	C4
2825	D4
2826	D2
2827	C2
2828	B3
2829	I3
2830	C2
2831	C4
2832	E3
2833	B4
2834	C3
2835	B4
2836	F3
2837	H3
2838	H2
2839	G2
2840	G2
2841	B3
2842	F3
2843	G3
2844	B4
2845	F2
2846	B4
2847	G3
2849	E5
2850	D2
2851	C1
2852	A2
2853	A3
2854	B4
2856	D2
2857	C1
2858	C1
2859	D2
2860	A3
2861	A4
2862	A4
2863	A5
2864	B3
2865	C5
2866	E3
2867	G5
2869	E2
2870	I2
2871	I4
2872	G2
2873	H3
2874	I2
2875	I3
2876	H3
2877	G1
2878	G1
2879	H1
2880	C5
2881	F1
2882	H2
2884	G4
2887	C3
3700	C1
3701	B3
3702	B2
3703	B2
3704	B2
3705	A3
3706	A3
3707	A3
3708	A3
3709	D2
3710	D2
3711	A3
3712	B5
3713	F1
3714	F1
3715	F2
3716	B4
3717	B4
3720	C1
3725	B5
3726	B5
3800	E4
3801	E4
3802	E4
3803	E4
3804	E4
3805	D4
3806	D4
3807	E4
3808	E4
3809	B3
3810	F4
3812	F4
3813	G5
3816	G5
3817	G4
3818	F4
3819	D2
3820	G5
3821	G5
3822	G4
3823	G4
3824	G5
3825	C4
3826	D4
3827	D3
3828	C1
3830	B4
3831	C1
3832	C2
3833	C4
3834	E3
3837	B3
3838	B4
3839	B3
3840	B3
3841	G2
3842	B3
3843	F3
3844	F3
3845	B4
3846	F3
3847	F2
3848	B4
3849	G2
3850	G3
3851	H3
3852	G3
3853	G3
3854	B1
3855	B1
3856	C3
3857	E5
3858	A4
3859	A4
3860	A4
3861	A4
3862	D4
3863	B3
3864	C1
3865	B2
3866	C2
3867	C4
3869	B2
3870	C5
3871	G1
3872	D1
3873	D1
3874	D1
3875	E2
3876	E2
3877	G1
3878	F2
3879	H3
3880	H3
3881	H2
3882	I2
3883	I3
3884	H3
3885	H3
3886	H4
3887	F2
3888	H1
3889	C2
3890	D1
3891	F4
3893	G4
3894	D3
3895	D3
3896	G2
3897	F4
3898	D5
3899	D5
5801	B5
5802	C5
6871	F1
6872	F1
6873	F1
6874	F2
6875	F1
7806	G3
7807	H3
7808	E2
7812	F2
7851	B2
7871	I3
7873	G1
7874	E1
7875	C5
9800	C4
9802	D2
9803	C5
9804	B2
9805	A4
9806	B2
9808	A4
9809	A4
9810	A4
9811	A4
9812	A2
9821	H3
9822	H2
9823	C3
9825	E3
9826	G1
9829	B4
9831	F1
9832	F2
9833	F3
9834	F3
9835	G4
9837	E2
9839	B4
9840	D1
9841	B2
9842	B2
9843	B2
9844	B1
9845	B1
9846	C1
9847	D1
9848	D1
9849	B3
9850	F3
9852	A2
9853	E1
9854	D1
9855	B3
9856	D4
9857	B4
9858	F4
9859	B4
9860	D4
9861	B3
9862	B5
9863	D5
9864	G2
9865	A1
9866	D5
9867	H1
9868	A5
9869	E5
9870	B5
9871	B5
9874	B4
9875	B4
9876	B5
9881	E1
9882	C4
9883	E1
9884	E1
9887	D1
9888	E5
9889	G4
9890	D5

Component side view

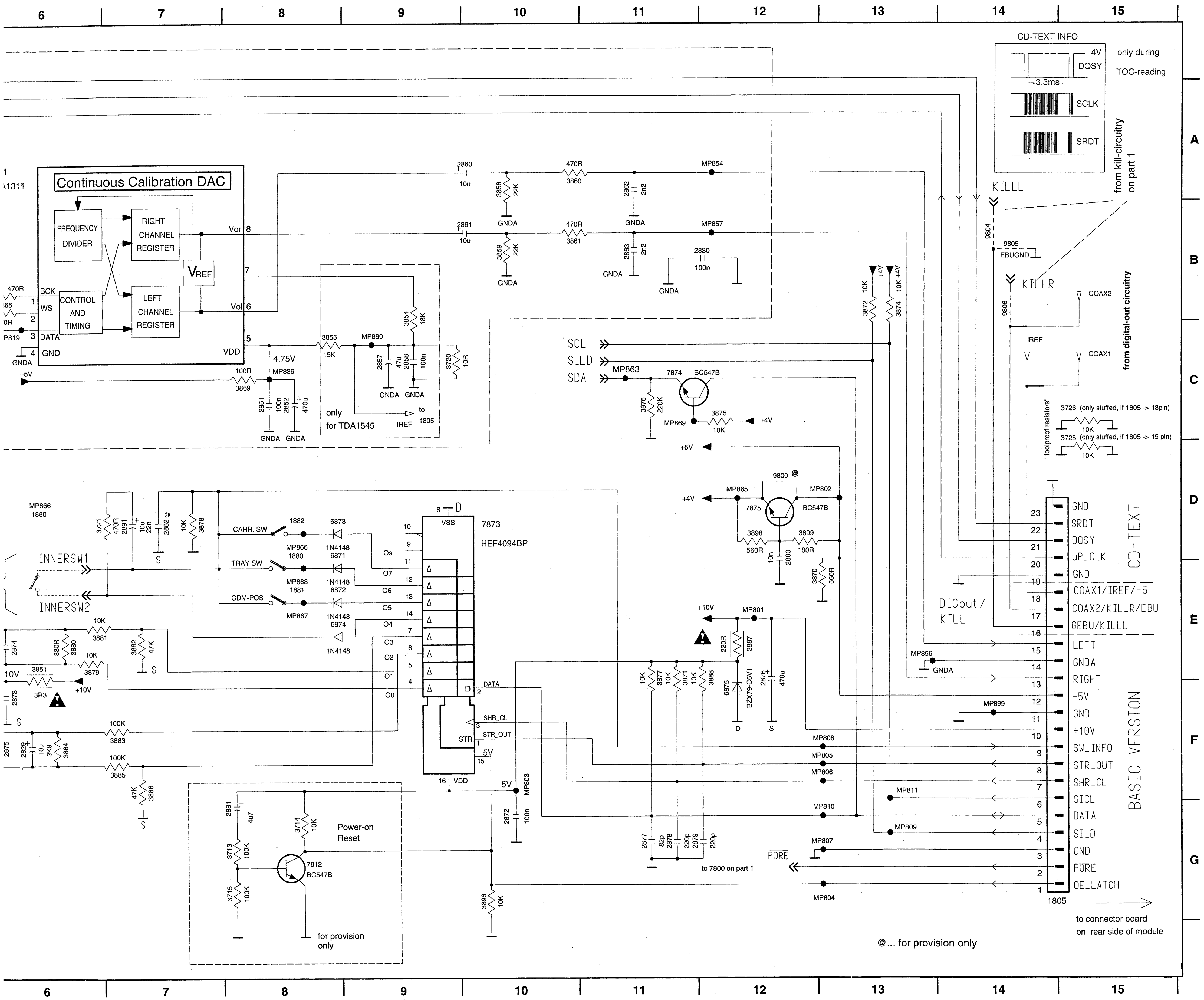

1
2
3
A
B
C
D
E
F
G
H
1805
1810
1878
1801
5801
5802
7806
7807
7871
7875

Circuit Diagram Main Board part2



1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G
to 7800 on part 1
7.35KHz
RCK
SUB
SBSY
SFSY
CL4
+4V
47R 3705
9812
3703 470R
3704 470R
3701 470R
3702 470R
3700 470R
MP885 4MHz
MP881 MP882 MP883 MP884
7876 LC89170M
EXCK SBSO SCOR WFCK MCK XMODE GND
32 x 8 2 PORT RAM
CPU INTERF
CRC CHECK
TIMING & SYNC PROTECTION
VDD DQSY SRDT SCLK SW2 SW1 TEST
MP886 3.8V
3711 10K
3706 470R
3707 470R
3708 470R
MP888 MP889 MP887
2853 100n
CD-Text circuitry
7851 TDA1311
Continuous Calibration DAC
FREQUENCY DIVIDER
RIGHT CHANNEL REGISTER
LEFT CHANNEL REGISTER
CONTROL AND TIMING
VREF
BCK WS DATA GND
Vor Vol VDD
from 7800 on part 1
BCK WS DACDATA
MP835 MP834 MP833 MP819
3832 470R
3865 470R
3866 470R
GNDA
+5V
100R 3869
4.75V MP836
2851 100n 2852 470u
GNDA GNDA
3855 15K
MP880
2857 47u 2858 100n
3854 18K
3720 10R
GNDA GNDA
only for TDA1545
to 1805
IREF
2860 10u
3858 22K
470R 3860
2862 2n2
MP854
2861 10u
3859 22K
470R 3861
2863 2n2
MP857
GNDA
2830 100n
+4V +4V
3872 10K 3874 10K
SCL SILD SDA
MP863
7874 BC547B
3876 220K
MP869
3875 10K
from 7800 on part 1
EBU
3809 47R
MP890
2864 47p
3716 120R
EBUGND
3717 1R
2854 100n
9803
5802 TYPE
3712 68R
5801 2u2
+5V
COAX1 COAX2
MP891 MP892
to 1805
2865 22n
EBUGND
digital out circuitry
MP866 1880
3721 470R 2891
10u 22n 2882 @
10K 3878
CARR. SW
TRAY SW
CDM-POS
1882
MP866 1880
MP868 1881
MP867
6873 1N4148 6871 1N4148 6872 1N4148 6874 1N4148
to 1801 on part 1
INNERSW1 INNERSW2
7873 HEF4094BP
VSS VDD
Os O7 O6 O5 O4 O3 O2 O1 O0
DATA SHR_CL STR_OUT STR 5V
7871 TDA7073A
MP822 MP823 MP825 MP824
1876 RF-500TB 2870 100n
1878 RF-500TB 2871 22n
Carrousel-motor
Tray-motor
OUT1-
VDD
0V 20V 10V 0V 0V
MP871
22n 2874
330R 3880
3881 10K
3882 47K
3879 10K
3851 3R3
+10V
100n 2873
100K 3883
22n 2875
2829 10u
3K9 3884
100K 3885
47K 3886
2881 4u7
3714 10K
3713 100K
3715 100K
7812 BC547B
Power-on Reset
for provision only
5V MP803
2872 100n
3896 10K
+5V
9800 @
MP865 MP802
+4V
7875 BC547B
3898 560R
3899 180R
10n 2880
3870 560R
+10V MP801
220R 3887
6875 BZX79-C5V1
2876 470u
10K 3877 10K 3871 10K 3888
2877 82p 2878 220p 2879 220p
MP808 MP805 MP806 MP810 MP807 MP804
PORE
to 7800 on part 1
@...f

ITEM	OPT_OUT	COAX_OUT
5802	NO	YES
5801	YES	NO
9803	YES	NO
3809	YES	YES
3717	YES	NO
3716	NO	YES
3712	NO	YES
2865	NO	YES
2864	YES	YES
2854	NO	YES



6
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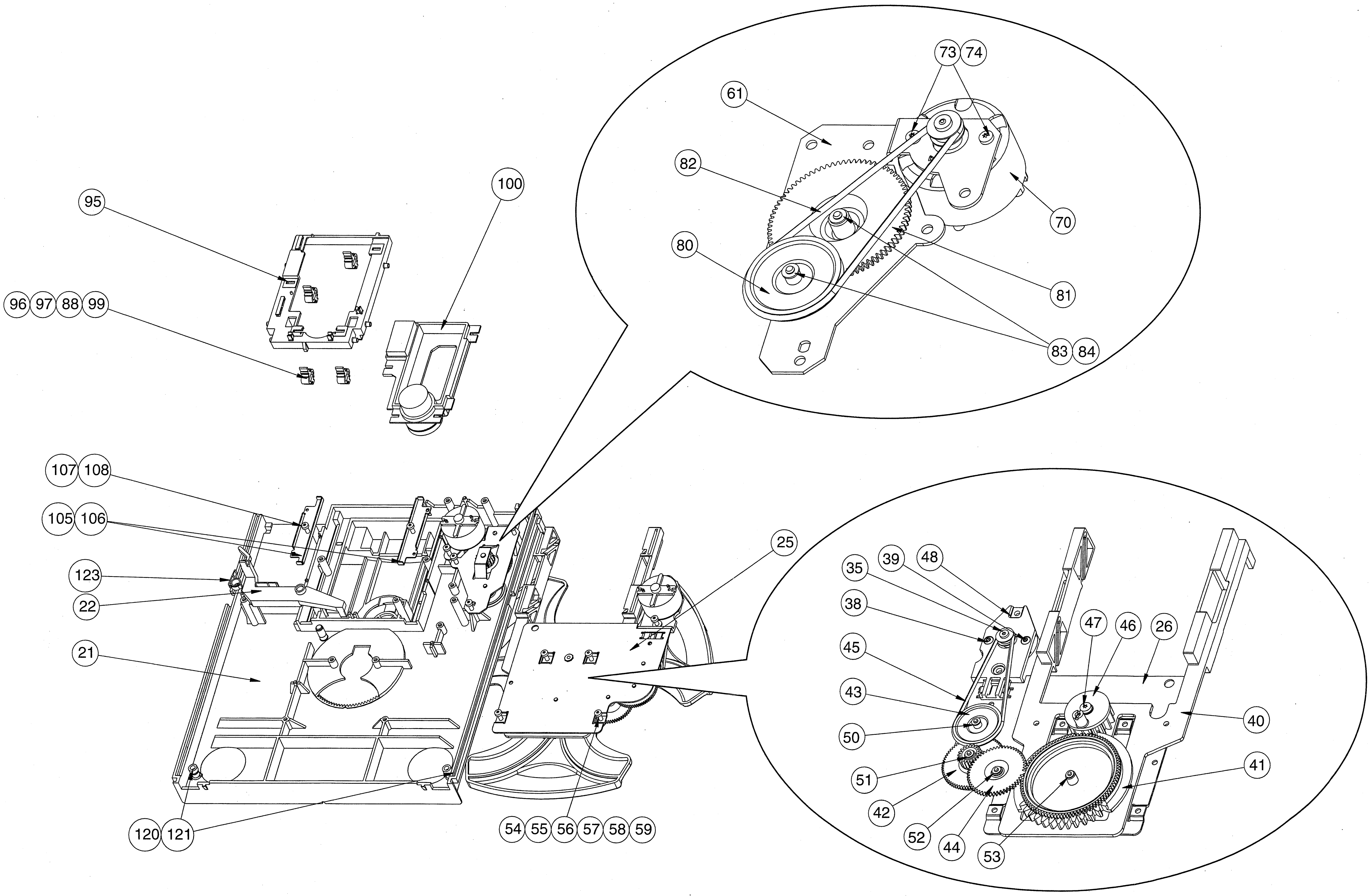
12
13
14
15
A
B
C
D
E
F
G
Continuous Calibration DAC
FREQUENCY DIVIDER
RIGHT CHANNEL REGISTER
LEFT CHANNEL REGISTER
CONTROL AND TIMING
VREF
BCK
WS
DATA
GND
VDD
Vor 8
Vol 6
7
5
A1311
470R
P819
GNDA
+5V
100R
3869
4.75V
MP836
2851 100n
2852 470u
3855 15K
MP880
2857
2858 47u
100n
3854 18K
3720 10R
only for TDA1545
IREF
to 1805
2860 10u
2861 10u
3858 22K
3859 22K
470R 3860
470R 3861
2862 2n2
2863 2n2
MP854
MP857
2830 100n
GNDA
GND
CD-TEXT INFO
4V
DQSY
3.3ms
SCLK
SRDT
only during TOC-reading
from kill-circuitry on part 1
KILLL
KILLR
9804
9805
EBUGND
9806
COAX2
COAX1
IREF
from digital-out circuitry
3726 (only stuffed, if 1805 -> 18pin)
10K
3725 (only stuffed, if 1805 -> 15 pin)
10K
'foolproof resistors'
+4V
3872 10K
3874 10K
SCL
SILD
SDA
MP863
7874 BC547B
3876 220K
MP869
3875 10K
+5V
+4V
MP865
9800 @
MP802
7875
BC547B
3898 560R
3899 180R
10n 2880
3870 560R
+10V
MP801
3887 220R
6875 BZX79-C5V1
2876 470u
D
S
MP866 1880
3721 470R
2891 10u
2882 @ 22n
10K 3878
INNERSW1
INNERSW2
CARR. SW
TRAY SW
CDM-POS
1882
MP866 1880
MP868 1881
MP867
6873 1N4148
6871 1N4148
6872 1N4148
6874 1N4148
7873 HEF4094BP
VSS
VDD
STR
DATA
SHR_CL
STR_OUT
5V
O0 O1 O2 O3 O4 O5 O6 O7 Os
MP803
2872 100n
10K 3881
330R 3880
10K 3879
3882 47K
3851 3R3
2873
2874
2875
2829 10u
3K9 3884
100K 3883
100K 3885
47K 3886
+10V
2881 4u7
3714 10K
3713 100K
3715 100K
7812 BC547B
Power-on Reset
for provision only
3896 10K
3877 10K
3871 10K
3888 10K
2877 82p
2878 220p
2879 220p
to 7800 on part 1
PORE
MP856
MP899
MP808
MP805
MP806
MP811
MP810
MP809
MP807
MP804
DIGout/KILL
23 GND
22 SRDT
21 DQSY
20 uP_CLK
19 GND
18 COAX1/IREF/+5
17 COAX2/KILLR/EBU
16 GEBU/KILLL
15 LEFT
14 GNDA
13 RIGHT
12 +5V
11 GND
10 +10V
9 SW_INFO
8 STR_OUT
7 SHR_CL
6 SICL
5 DATA
4 SILD
3 GND
2 PORE
1 OE_LATCH
1805
CD-TEXT
BASIC VERSION
to connector board on rear side of module
@... for provision only

1805	G14
1876	E3
1878	F3
1880	D8
1881	E8
1882	D8
2829	F6
2830	B12
2851	C8
2852	C8
2853	B2
2854	C2
2857	C9
2858	C9
2860	A10
2861	B10
2862	A11
2863	B11
2864	D2
2865	D3
2870	E4
2871	F4
2872	G10
2873	F6
2874	E6
2875	F6
2876	E12
2877	G11
2878	G11
2879	G11
2880	D12
2881	G8
2882	D7
3700	B2
3701	B2
3702	B2
3703	A2
3704	A2
3705	A2
3706	A4
3707	B4
3708	B4
3711	A4
3712	C3
3713	G8
3714	G8
3715	G8
3716	D2
3717	C2
3720	C9
3725	D15
3726	C15
3809	C2
3832	B6
3851	E6
3854	B9
3855	C8
3858	A10
3859	B10
3860	A10
3861	B10
3865	B6
3866	C6
3869	C8
3870	E12
3871	E11
3872	B13
3874	B13
3875	C12
3876	C11
3877	E11
3878	D7
3879	E6
3880	E6
3881	E6
3882	E7
3883	F7
3884	F6
3885	F7
3886	F7
3887	E12
3888	E12
3896	G10
3898	D12
3899	D12
5801	C4
5802	C3
6871	D8
6872	E8
6873	D8
6874	E8
6875	F12
7812	G8
7851	A6
7871	E5
7873	D10
7874	C11
7875	D12
7876	A2
9800	D12
9803	C3
9804	B14
9805	B14
9806	B14
9808	A10
9809	A10
9810	B10
9811	B10
9812	A2
MP801	E12
MP802	D13
MP803	F10
MP804	G13
MP805	F13
MP806	F13
MP807	G13
MP808	F13
MP809	G13
MP810	G13
MP811	F13
MP819	C6
MP822	E4
MP823	E4
MP824	F4
MP825	F4
MP833	C5
MP834	B5
MP835	B5
MP836	C8
MP854	A12
MP856	E13
MP857	B12
MP863	C11
MP865	D12
MP866	D8
MP867	E8
MP868	E8
MP869	C11
MP871	E6
MP880	C9
MP881	A2
MP882	A2
MP883	B2
MP884	B2
MP885	B2
MP886	A4
MP887	B4
MP888	B4
MP889	B4
MP890	C2
MP891	D4
MP892	D4
MP899	F14

EXPLODED VIEW (3CDC MODULE)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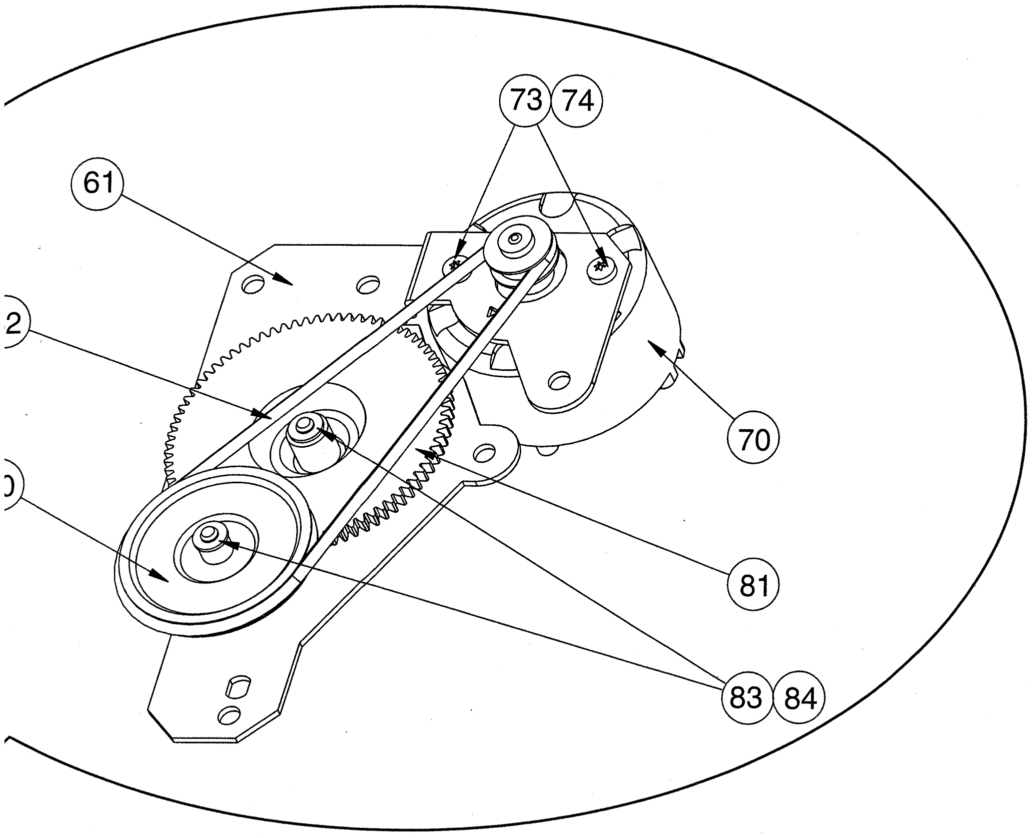
MECHANICAL

	4822 3
3	4822 4
4	4822 4
21	4822 4
22	4822 4
38	4822 5
39	4822 5
40	4822 4
41	4822 5
42	4822 5



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0
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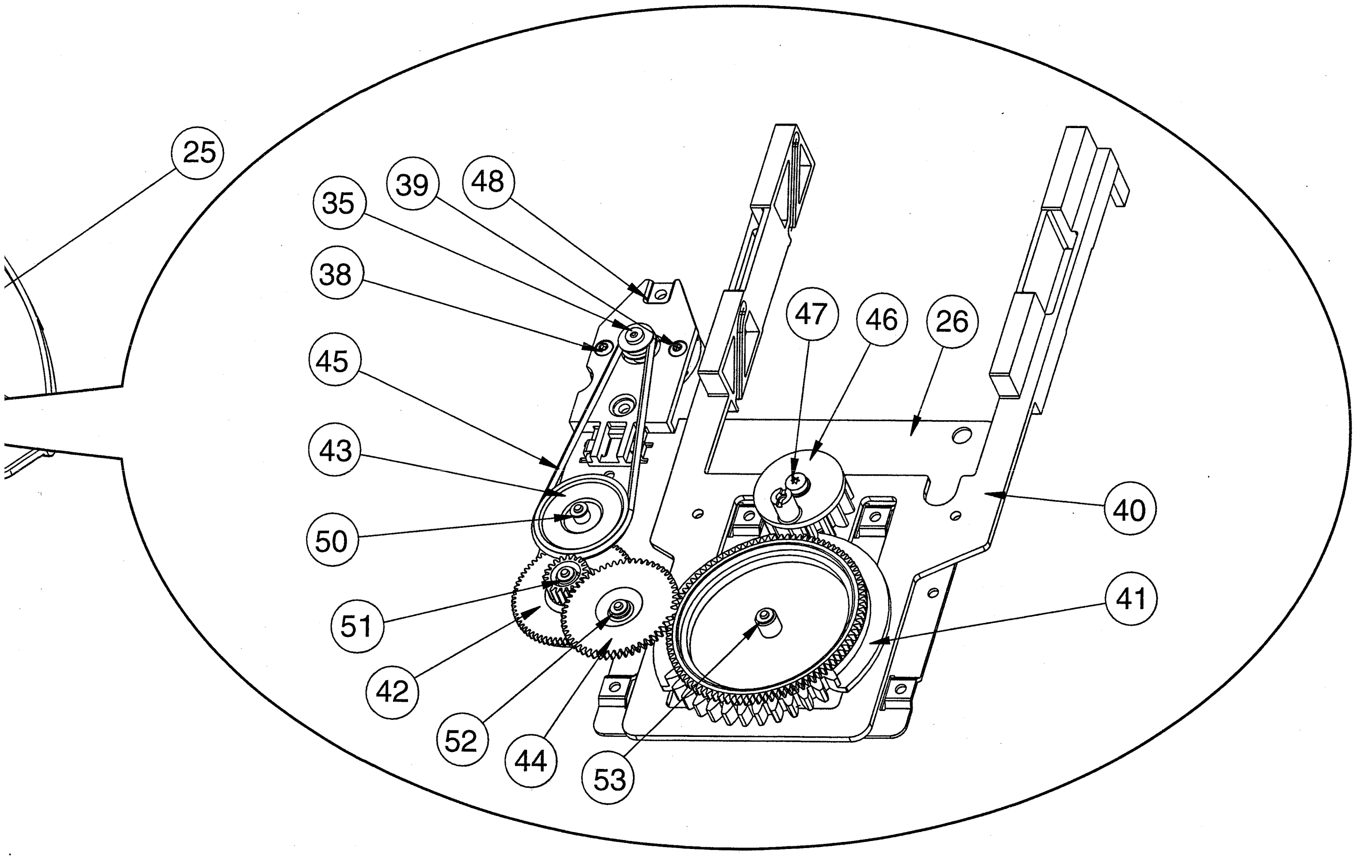
84



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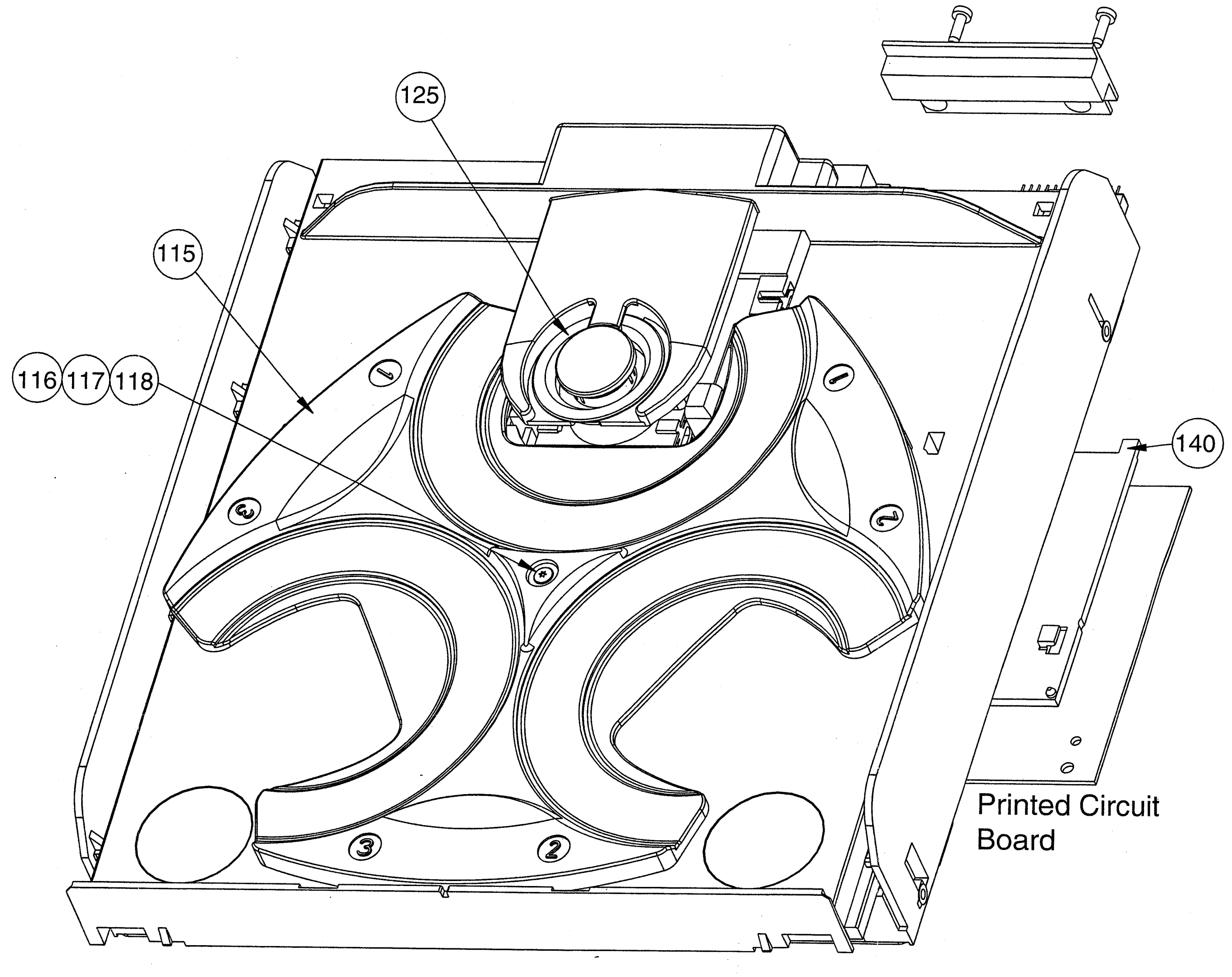

125
115
116
117
118
140
Printed Circuit Board

MECHANICAL PARTSLIST 3CDC MODULE

	4822 390 10136	POLYLUB GLY801 (GREASE)
3	4822 463 11008	GUIDE LEFT
4	4822 463 11009	GUIDE RIGHT
21	4822 441 11615	DRAWER
22	4822 402 10088	BRACKET TUMBLER
38	4822 502 12548	SCREW M2,6X3,5
39	4822 502 12548	SCREW M2,6X3,5
40	4822 463 11011	SLIDE
41	4822 522 10509	CONTROL DISC
42	4822 522 10492	GEAR WHEEL
43	4822 528 10937	PULLEY
44	4822 522 10493	IDLER WHEEL
45	4822 358 10115	BELT
46	4822 466 10735	ECCENTRIC GEAR WHEEL
50	4822 532 12364	WASHER
51	4822 532 12364	WASHER
52	4822 532 12364	WASHER
53	4822 532 12364	WASHER
35	4822 361 10753	CARROUSEL MOTOR
70	4822 361 10753	CARROUSEL MOTOR

POWER 2VA BOARD

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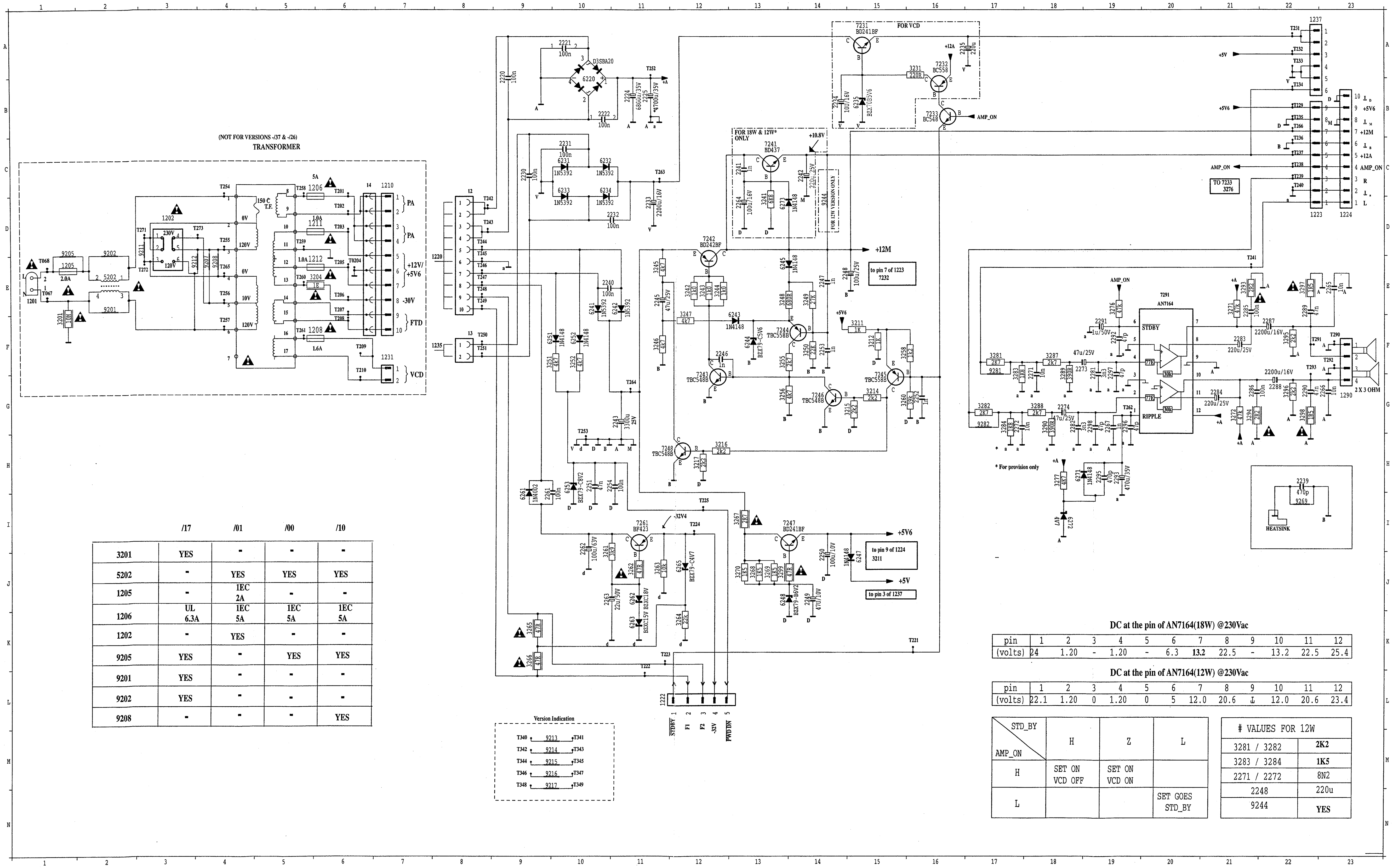
Remarks :

POWER 2VA CIRCUIT

Ref	Pos
12	C 8
1201	E 1
1202	D 3
1205	E 1
1206	C 6
1208	F 6
1210	C 7
1211	D 6
1212	E 6
1222	L11
1223	D22
1224	D23
1231	F 7
1237	A22
1290	G23
13	F 8
14	C 6
2220	A 9
2221	A10
2222	B10
2224	B11
2225	B11
2230	C 9
2231	C10
2232	D11
2233	D11
2234	B14
2235	A16
2239	H22
2240	E10
2241	C13
2242	C14
2243	G11
2245	E11
2246	F12
2247	E14
2248	E14
2249	J14
2250	J14
2251	H10
2252	G16
2253	F14
2254	H10
2261	I 9
2262	I10
2263	J10
2264	D13
2265	E23
2266	G23
2267	G19
2271	F18
2272	G17
2273	F18
2274	G18
2281	F19
2282	G18
2283	F21
2284	G21
2285	E21
2286	G21
2287	F22
2288	G22
2289	E22
2290	G22
2291	F19
2292	F19
2293	H19
2295	H19
2296	G19
2297	F19
2298	G19
3201	F 1
3204	E 6
3211	F15
3212	F15
3214	G15
3215	G15
3216	H12
3217	H12
3231	A16
3241	D13
3242	E12
3243	E12
3244	E12
3245	E11
3246	F11
3247	F12
3248	E13
3249	E14
3250	F14
3251	F 9
3252	F10
3255	F13
3256	G13
3258	F15
3260	G15
3261	I10
3262	J11
3263	J11
3264	K12
3265	K 9
3266	K 9
3267	I13
3268	J13
3269	J13
3270	J13
3271	E21
3272	G21
3276	E19
3277	H18
3281	F17
3282	G17
3283	F17
3284	G17
3287	F18
3288	G18
3289	F18
3290	G18
3293	E21
3294	G21
3295	F22
3296	G22
3297	E22
3298	G22
3299	J13
5202	E 2
6220	A10
6231	C10
6232	C10
6233	C10
6234	C10
6235	B15
6241	E10
6242	E11
6243	F13
6244	F13
6245	E13
6247	J15
6248	J13
6251	F 9
6252	F10
6253	H10
6261	I 9
6262	J11
6263	K11
6265	J12
6271	H18
6272	I18
6273	D13
7231	A15
7232	A16
7233	B16
7241	C13
7242	D12
7243	G12
7244	F13
7245	G15
7246	G14
7247	I13
7248	H12
7261	I11
7291	E20
9201	E 2
9202	D 2
9205	D 1
9207	E 4
9208	E 4
9211	D 3
9212	E 3
9213	M 9
9214	M 9
9215	M 9
9216	M 9
9217	M 9
9244	D14
9269	I22
9281	F17
9282	G17


(NOT FOR VERSIONS -/37 & -/26)
TRANSFORMER
FOR VCD
7231 BD241BF
7232 BC558
7233 BC548
FOR 18W & 12W* ONLY
7241 BD437
+10.8V
FOR 12W VERSION ONLY
7242 BD242BF
+12M
to pin 7 of 1223 7232
7247 BD241BF
+5V6
to pin 9 of 1224 3211
+5V
to pin 3 of 1237
7261 BF423
-32V4
D3SBA20
7291 AN7164
STDBY
RIPPLE
AMP_ON
TO 7233 3276
2 X 3 OHM
* For provision only
HEATSINK
PA
+12V/ +5V6
-30V
FTD
VCD
1222
STDBY
F1
F2
-32V
PWD DN
Version Indication
T340 9213 T341
T342 9214 T343
T344 9215 T345
T346 9216 T347
T348 9217 T349

	/17	/01	/00	/10
3201	YES	-	-	-
5202	-	YES	YES	YES
1205	-	1EC 2A	-	-
1206	UL 6.3A	1EC 5A	1EC 5A	1EC 5A
1202	-	YES	-	-
9205	YES	-	YES	YES
9201	YES	-	-	-
9202	YES	-	-	-
9208	-	-	-	YES

DC at the pin of AN7164(18W) @230Vac

pin	1	2	3	4	5	6	7	8	9	10	11	12
(volts)	24	1.20	-	1.20	-	6.3	13.2	22.5	-	13.2	22.5	25.4

DC at the pin of AN7164(12W) @230Vac

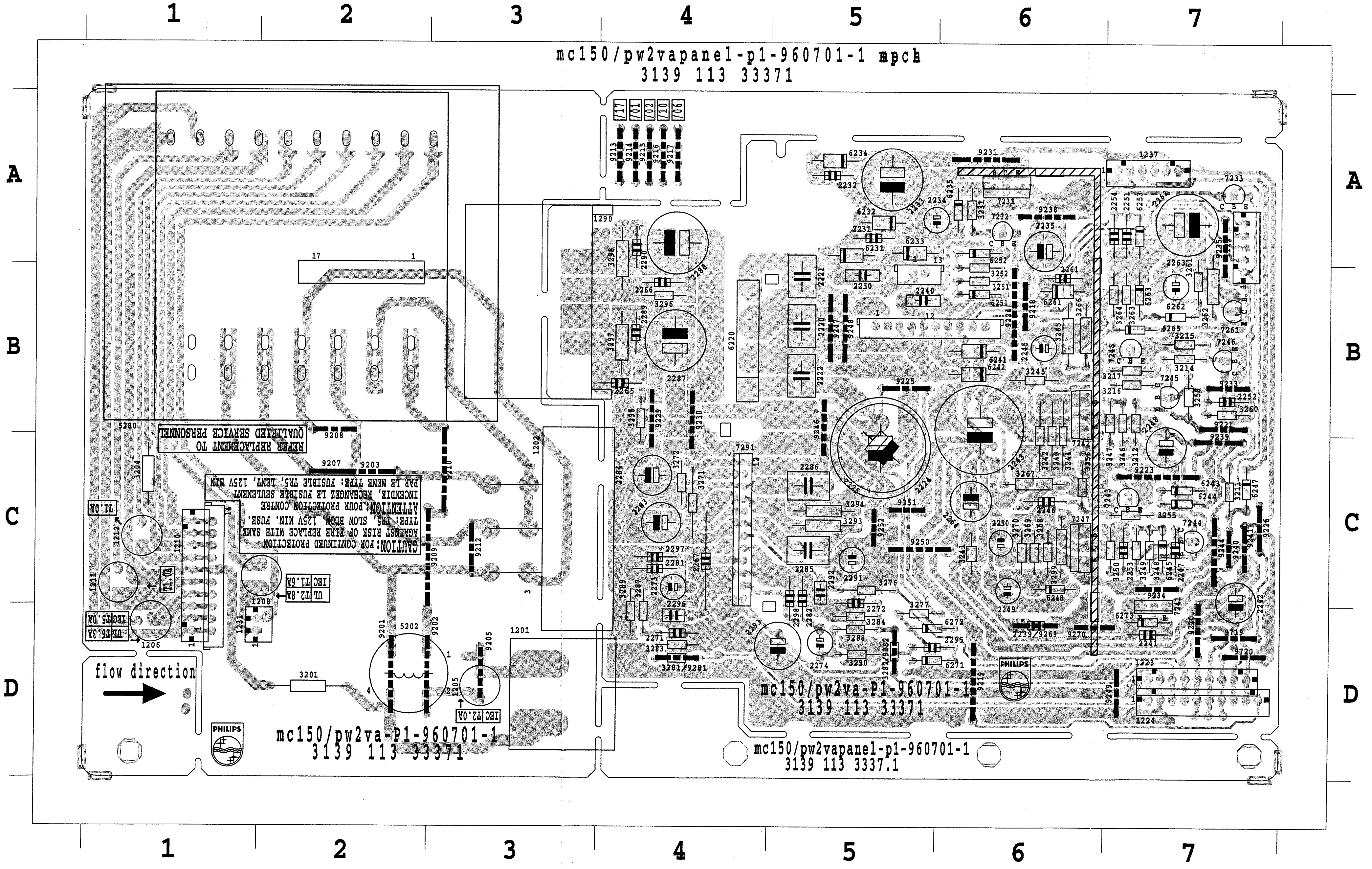
pin	1	2	3	4	5	6	7	8	9	10	11	12
(volts)	22.1	1.20	0	1.20	0	5	12.0	20.6	⊥	12.0	20.6	23.4

STD_BY / AMP_ON	H	Z	L
H	SET ON VCD OFF	SET ON VCD ON	
L			SET GOES STD_BY

# VALUES FOR 12W	
3281 / 3282	**2K2**
3283 / 3284	**1K5**
2271 / 2272	8N2
2248	220u
9244	**YES**

POWER 2VA COMPONENT LAYOUT

12 B 5	1223 D 7	2232 A 5	2248 C 7	2266 B 4	2287 B 4	3204 C 1	3245 B 6	3261 B 7	3276 C 5	3295 B 4	6235 A 6	6262 B 7	7244 C 7	9208 B 2	9221 B 7	9239 C 7	9270 D 6
13 B 5	1224 D 7	2233 A 5	2249 C 6	2267 C 4	2288 A 4	3211 C 7	3246 B 7	3262 B 7	3277 D 5	3296 B 4	6241 B 6	6263 B 7	7245 B 7	9209 C 2	9223 C 7	9240 C 7	9281 D 4
14 C 1	1231 D 1	2234 A 5	2250 C 6	2271 D 4	2289 B 4	3212 B 7	3247 B 7	3263 B 7	3281 D 4	3297 B 4	6242 B 6	6265 B 7	7246 B 7	9210 C 3	9224 B 6	9241 C 7	9282 D 5
1201 D 3	1237 A 7	2235 A 6	2251 A 7	2272 C 5	2290 A 4	3214 B 7	3248 C 7	3264 B 7	3282 D 5	3298 A 4	6243 C 7	6271 D 5	7247 C 6	9212 C 3	9225 B 5	9244 C 7	9719 D 7
1202 C 3	1290 B 3	2239 D 6	2252 B 7	2273 C 4	2291 C 5	3215 B 7	3249 C 7	3265 B 6	3283 D 4	3299 C 6	6244 C 7	6272 D 5	7248 B 7	9213 A 4	9226 C 7	9246 B 5	9720 D 7
1205 D 3	2220 B 5	2240 B 5	2253 C 7	2274 D 5	2292 C 5	3216 B 7	3250 C 7	3266 B 6	3284 D 5	5202 D 2	6245 C 7	6273 D 7	7261 B 7	9214 A 4	9229 B 4	9247 B 5	----
1206 D 1	2221 B 5	2241 D 7	2254 A 7	2281 C 4	2293 D 5	3217 B 7	3251 B 6	3267 C 6	3287 D 4	5280 B 2	6247 C 7	7231 A 6	7291 C 4	9215 A 4	9230 B 4	9248 B 5	
1208 C 2	2222 B 5	2242 C 7	2261 B 6	2282 C 5	2295 D 5	3231 A 6	3252 B 6	3268 C 6	3288 D 5	6220 B 4	6248 C 6	7232 A 6	9201 D 2	9216 A 4	9231 A 6	9249 D 7	
1210 C 1	2224 C 5	2243 B 6	2262 A 7	2283 C 4	2296 D 4	3241 C 6	3255 C 7	3269 C 6	3289 D 4	6231 A 5	6251 B 6	7233 A 7	9202 D 2	9217 A 4	9233 B 7	9250 C 5	
1211 C 1	2225 C 5	2245 B 6	2263 B 7	2284 C 4	2297 C 4	3242 B 6	3256 C 6	3270 C 6	3290 D 5	6232 A 5	6252 A 6	7241 C 7	9203 C 2	9218 B 6	9234 C 7	9251 C 5	
1212 C 1	2230 B 5	2246 C 6	2264 C 6	2285 C 5	2298 C 5	3243 B 6	3258 B 7	3271 C 4	3293 C 5	6233 A 5	6253 A 7	7242 B 6	9205 D 3	9219 D 6	9235 A 7	9252 C 5	
1222 A 7	2231 A 5	2247 C 7	2265 B 4	2286 C 5	3201 D 2	3244 B 6	3260 B 7	3272 C 4	3294 C 5	6234 A 5	6261 B 6	7243 C 7	9207 C 2	9220 D 7	9238 A 6	9269 D 6	


1
2
3
4
5
6
7
A
B
C
D
mc150/pw2vapanel-p1-960701-1 mpch
3139 113 33371
REFER REPLACEMENT TO QUALIFIED SERVICE PERSONNEL
CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE WITH SAME TYPE: TR5, SLOW BLOW, 125V MIN. FUSE.
ATTENTION: POUR PROTECTION CONTRE INCENDIE, RECHANGEZ LE FUSIBLE SEULEMENT PAR LE MEME TYPE: FUSIBLE TR5, LENT, 125V MIN
flow direction
PHILIPS
mc150/pw2va-P1-960701-1
3139 113 33371
mc150/pw2va-P1-960701-1
3139 113 33371
mc150/pw2vapanel-p1-960701-1
3139 113 3337.1
5280
5202
1201
1202
1290
7291
6220
1237
1223
1224
9201
9202
9205
3201
3204
1206
1208
1210
1211
1212
1231

ELECTRICAL PART LIST - POWER 2VA BOARD

MISCELLANEOS

1201	4822 265 31015	⚠	Mains Socket
1202	4822 272 10269	⚠	Voltage Selector /21S
1206	4822 071 55002	⚠	Fuse T5A 250V
1205	4822 071 52002	⚠	Fuse T2A 250V /21S
1211	4822 071 51002	⚠	Fuse T1A 250V
1212	4822 071 51002	⚠	Fuse T1A 250V

CAPACITORS

2220	5322 121 42386	100nF 5% 63V
2221	5322 121 42386	100nF 5% 63V
2222	5322 121 42386	100nF 5% 63V
2224	4822 124 11516	35V 6800µF 20% LA5
2239	4822 122 33519	470pF 10% 50V
2240	5322 121 42386	100nF 5% 63V
2241	4822 122 33197	1nF 10% 50V
2242	4822 124 22263	220µF 20% 25V
2243	4822 124 42057	3300µF 20% 25V
2245	4822 124 40433	47µF 20% 25V
2246	4822 122 33197	1nF 10% 50V
2247	4822 122 33197	1nF 10% 50V
2248	4822 124 81029	100µF 20% 25V
2249	4822 124 40433	47µF 20% 25V
2250	4822 124 41584	100µF 20% 10V
2251	4822 126 12785	47nF TUB 50V
2252	4822 122 33197	1nF 10% 50V
2253	4822 122 33197	1nF 10% 50V
2254	4822 126 12882	100nF +80-20% 50V
2261	4822 126 12882	100nF +80-20% 50V
2262	4822 124 40255	100µF 20% 63V
2263	4822 124 41596	22µF 20% 50V
2264	4822 124 81136	100µF 25V
2265	4822 121 51387	10nF 20% 16V
2266	4822 121 51387	10nF 20% 16V
2267	4822 122 33197	1nF 10% 50V
2271	4822 121 51387	10nF 20% 16V
2272	4822 121 51387	10nF 20% 16V
2273	4822 124 40433	47µF 20% 25V
2274	4822 124 40433	47µF 20% 25V
2281	4822 122 10577	3,3nF 10% 16V
2282	4822 122 10577	3,3nF 10% 16V
2283	4822 124 22263	220µF 20% 25V
2284	4822 124 22263	220µF 20% 25V
2285	5322 121 42386	100nF 5% 63V
2286	5322 121 42386	100nF 5% 63V
2287	4822 123 14025	16V 2200µF 20%
2288	4822 123 14025	16V 2200µF 20%
2289	4822 126 12785	47nF TUB 50V
2290	4822 126 12785	47nF TUB 50V
2291	4822 124 40242	1µF 20% 63V
2293	4822 123 14026	35V 470µF 20%
2295	4822 122 33519	470pF 10% 50V
2297	4822 122 33848	47pF 5%SL 50V
2298	4822 122 33848	47pF 5%SL 50V

RESISTORS

3204	4822 052 10108		1R 5% 0,33W
3211	4822 050 11002		1k 1% 0,4W
3212	4822 050 11002		1k 1% 0,4W
3214	4822 116 52256		2k2 5% 0,5W
3215	4822 116 52256		2k2 5% 0,5W
3216	4822 116 52256		2k2 5% 0,5W
3217	4822 116 52256		2k2 5% 0,5W
3541	4822 116 83961		6k8 5%
3242	4822 050 11002		1k 1% 0,4W
3243	4822 050 11002		1k 1% 0,4W
3244	4822 050 11002		1k 1% 0,4W
3245	4822 116 52283		4k7 5% 0,5W
3246	4822 116 52283		4k7 5% 0,5W
3247	4822 116 52283		4k7 5% 0,5W
3248	4822 116 52228		680R 5% 0,5W
3249	4822 116 52264		27k 5% 0,5W
3250	4822 116 52257		22k 5% 0,5W
3251	4822 116 52283		4k7 5% 0,5W
3252	4822 116 52283		4k7 5% 0,5W
3255	4822 116 52263		2k7 5% 0,5W
3256	4822 116 52283		4k7 5% 0,5W
3258	4822 116 52207		1k2 5% 0,5W
3260	4822 116 83882		39k 5% 0,5W
3261	4822 116 52276		3k9 5% 0,5W
3262	4822 052 10479	⚠	47R 5% 0,33W
3263	4822 116 83864		10k 5% 0,5W
3264	4822 116 52257		22k 5% 0,5W
3265	4822 052 10479	⚠	47R 5% 0,33W
3266	4822 052 10479	⚠	47R 5% 0,33W
3267	4822 052 10278	⚠	2R7 5% 0,33W
3268	4822 116 52243		1k5 5% 0,5W
3269	4822 116 52243		1k5 5% 0,5W
3270	4822 116 52243		1k5 5% 0,5W
3271	4822 116 83884		47k 5% 0,5W
3272	4822 116 83884		47k 5% 0,5W
3276	4822 116 83884		47k 5% 0,5W
3277	4822 116 52283		4k7 5% 0,5W
3281	4822 116 52263		2k7 5% 0,5W
3282	4822 116 52263		2k7 5% 0,5W
3283	4822 116 52249		1k8 5% 0,5W
3284	4822 116 52249		1k8 5% 0,5W
3287	4822 116 52263		2k7 5% 0,5W
3288	4822 116 52263		2k7 5% 0,5W
3289	4822 116 52222		390R 5% 0,5W
3290	4822 116 52222		390R 5% 0,5W
3293	4822 052 10228	⚠	2R2 5% 0,33W
3294	4822 052 10228	⚠	2R2 5% 0,33W
3295	4822 116 52256		2k2 5% 0,5W
3296	4822 116 52256		2k2 5% 0,5W
3297	4822 117 12148	⚠	1R5 5% 0,33W
3298	4822 117 12148	⚠	1R5 5% 0,33W
3299	4822 052 10479	⚠	47R 5% 0,33W

ELECTRICAL PART LIST - POWER 2VA BOARD

COILS & FILTERS

5202	4822 157 71285	⚠	Choke Coil 400µF 30%

DIODES

6220	4822 130 82079	D3SBA20
6241	5322 130 80686	1N5392
6242	5322 130 80686	1N5392
6243	4822 130 30621	1N4148
6244	4822 130 34173	BZX79-B5V6
6245	4822 130 30621	1N4148
6247	4822 130 30621	1N4148
6248	4822 130 34167	BZX79-B6V2
6251	4822 130 30621	1N4148
6252	4822 130 30621	1N4148
6253	4822 130 34382	BZX79-B8V2
6261	5322 130 30684	1N4002RL
6262	4822 130 31024	BZX79-B18
6263	4822 130 34281	BZX79-B15
6265	4822 130 34174	BZX79-B4V7
6271	4822 130 30621	1N4148
6272	4822 130 34174	BZX79-B4V7
6273	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7241	4822 130 40982	BD437
7242	4822 130 63575	BD242BFI
7243	4822 130 40937	BC548B
7244	4822 130 44197	BC558B
7245	4822 130 44197	BC558B
7246	4822 130 40937	BC548B
7247	4822 130 63615	BD241BFI
7248	4822 130 40937	BC548B
7261	4822 130 41646	BF423
7291	4822 209 90411	AN7164

Note : Only the parts mentioned in this list are normal service spare parts

AF3 BOARD

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Circuit Diagram 12-2
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Chip component layout 12-4
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BRIEF INTRODUCTION OF AF3 BOARD

The AF3 Board consists of the following:

a. SOFAC IC which includes functions such as source selection, loudness control, dynamic bass control, treble control, front/ rear volume control and muting function. Sound features such as DBB, DSC, and IS are controllable via I^2C data from the microprocessor.
The SOFAC IC caters for 4 input sources namely Tuner, Tape, CD and AUX.

b. Karaoke Mic Mixing
NK: Non-Karaoke
SK: Simple Karaoke which caters for mic. mixing with additional mic. amplifier board.
FK: Full Karaoke with vocal fader and echo effect with additional Karaoke Board.

c. Dolby Pro-Logic interface
It caters for DPL and also DPL with one of the Karaoke functions.

d. Line out provision

e. Sub-woofer output with cinch socket for connection to active sub-woofer speaker.

f. Incredible Surround effect using transistor circuit to create phase shifting and spatial effect.

g. Headphone amplifier using Op-Amp. NJM4456M

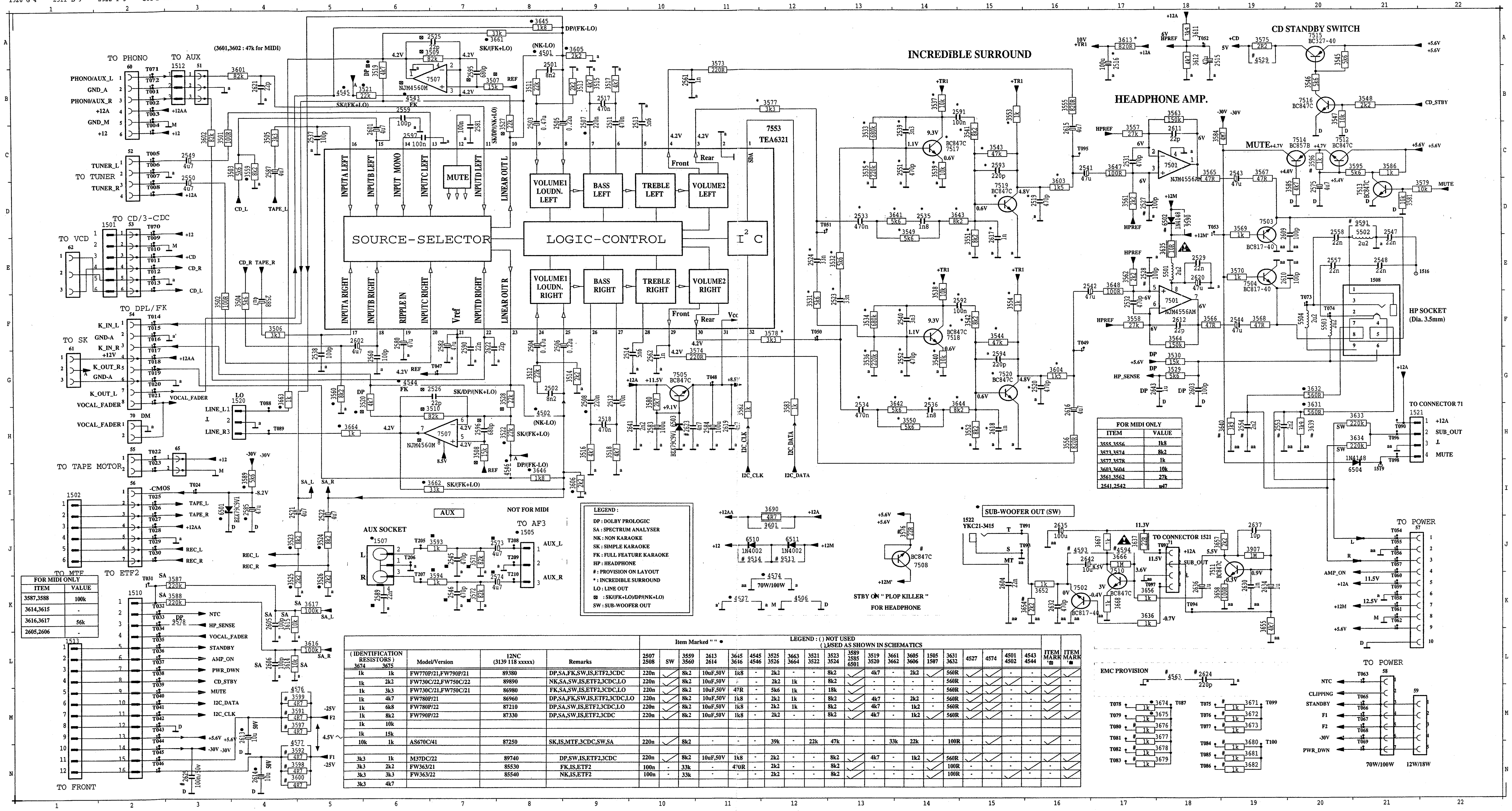
h. CD Standby control circuit which switches on the supply to CD Servo control IC, HF circuit and the laser light pen in CD mode only.

i. Headphone Sensing circuit to mute centre and surround channels in DPL application.

j. Attenuation network is provided at the output of the AF3 Board for interfacing with power board of different output power.

AF3 CIRCUIT

1501 D 2	1521 H21	2512 G 9	2523 F13	2535 D14	2546 K 7	2559 B 6	2584 H11	2596 H 7	2612 F18	2623 H10	2643 G17	3511 B 8	3522 H 8	3533 C13	3544 F15	3555 B16	3566 F18	3577 B12	3588 K 3	3600 N 5	3615 K 4	3640 H19	3655 K19	3671 M19	3682 N19	4546 I 8	55 H 2	62 E 1	7501 F18	7513 D21	9578 K 3
1502 I 1	1522 J15	2513 B10	2524 E12	2536 H14	2547 D21	2560 G 6	2585 I 4	2597 C 6	2613 M 4	2624 L18	3501 C 3	3512 G 8	3523 J 4	3534 F13	3545 A20	3556 H16	3567 C19	3578 F12	3589 I 4	3601 B 4	3616 L 5	3641 D14	3656 K17	3672 M19	3690 I12	4563 L18	5501 E18	65 H 3	7502 K16	7514 C20	9590 D18
1505 J 8	2501 A 8	2514 G 9	2525 A 7	2537 C 5	2548 E21	2561 B10	2587 C 4	2601 C 6	2614 N 4	2625 N 3	3502 F 3	3513 B 9	3524 J 5	3535 C13	3546 B20	3557 C17	3568 F19	3579 D22	3591 M 5	3602 C 3	3617 K 5	3642 H14	3657 J18	3673 M19	3907 J19	4574 K12	5502 D21	6501 I 3	7503 D19	7515 A20	9591 D21
1507 J 6	2502 G 8	2515 A18	2526 G 7	2538 G 5	2549 C 3	2562 G10	2588 F 4	2602 F 5	2615 C16	2630 K19	3503 C 4	3514 G 9	3525 K 4	3536 G13	3547 B20	3558 F17	3569 D19	3580 G10	3592 N 5	3603 D16	3631 H20	3643 D14	3658 K18	3674 M18	4501 A 8	4576 M 4	5503 F20	6502 D18	7504 E19	7516 B20	9601 J12
1508 E21	2503 B 8	2516 A17	2527 D17	2539 C14	2550 C 3	2573 J 7	2589 K 6	2603 G18	2616 H16	2632 K16	3504 F 4	3515 B 9	3526 K 5	3537 B14	3548 B21	3559 C 4	3570 E19	3581 D21	3593 J 7	3604 G16	3632 G20	3644 H14	3661 A 8	3675 M18	4502 H 8	4577 N 4	5504 F20	6503 H10	7505 G10	7517 C15	
1510 K 2	2504 F 8	2517 B 9	2528 E17	2540 F14	2551 C14	2574 K 7	2590 F 7	2604 K15	2617 E15	2634 K19	3505 C 4	3516 H 9	3527 C 8	3538 F14	3549 D14	3560 G 5	3571 J 7	3582 H11	3594 K 7	3605 A 9	3633 H21	3645 A 8	3662 I 7	3676 M18	4506 K12	4593 J16	56 I 2	6504 I21	7507 B 6	7518 F15	
1512 A 3	2505 B 8	2518 H 9	2529 E18	2541 C16	2552 G14	2575 D20	2591 B15	2605 K 4	2618 H15	2635 J16	3506 F 4	3517 B 9	3528 G 8	3539 C14	3550 H14	3561 D17	3572 K 7	3583 H12	3595 C21	3606 I 9	3634 H21	3646 I 8	3663 G 4	3677 M18	4527 K11	4594 J17	57 J21	6510 J11	7507 H 7	7519 D15	
1513 L 1	2506 F 8	2519 D16	2531 C17	2542 E16	2553 H19	2580 F 6	2592 F15	2606 L 4	2619 H11	2636 K18	3507 B 7	3518 H 9	3529 G18	3540 G14	3551 E15	3562 E17	3573 A11	3584 C18	3596 C20	3611 A18	3635 E18	3647 C17	3664 H 5	3678 N18	4529 A19	51 A 3	58 L21	6511 J12	7508 J14	7520 G15	
1516 E21	2507 B 9	2520 G16	2532 F17	2543 C19	2554 H19	2581 C 7	2593 C15	2609 D19	2620 E18	2637 J19	3508 H 7	3519 B 6	3530 G18	3541 C15	3552 H15	3563 B18	3574 G11	3585 D20	3597 M 5	3612 A18	3636 K17	3648 E17	3666 J17	3679 N18	4543 B 6	52 C 2	59 M21	70 H 2	7510 J17	7553 C12	
1519 I21	2508 G 9	2521 I 4	2533 D13	2544 F19	2557 E20	2582 F 7	2594 G15	2610 E19	2621 B 4	2641 H10	3509 A 7	3520 G 6	3531 F12	3542 F15	3553 B15	3564 F18	3575 A19	3586 C21	3598 N 5	3613 A17	3637 J17	3652 K16	3667 J17	3680 N19	4544 G 6	53 D 2	60 A 2	71 J18	7511 K18	9513 J12	
1520 G 4	2511 B 9	2522 I 5	2534 H13	2545 J 7	2558 D20	2583 H10	2595 B 7	2611 C18	2622 F 7	2642 J16	3510 H 7	3521 B 6	3532 E13	3543 C15	3554 F15	3565 C18	3576 J14	3587 K 3	3599 M 5	3614 L 4	3639 H20	3654 K16	3668 K17	3681 N19	4545 B 5	54 F 2	61 F 1	7501 C18	7512 C20	9514 J11	



(3601,3602 : 47k for MIDI)
TO PHONO
TO AUX
PHONO/AUX_L
GND_A
PHONO/AUX_R
TO TUNER
TO CD/3-CDC
TO VCD
TO DPL/FK
TO SK
TO TAPE MOTOR
TO MTF
TO ETF2
TO FRONT
SOURCE-SELECTOR
LOGIC-CONTROL
I2C
7553 TEA6321
VOLUME1 LOUDN. LEFT
BASS LEFT
TREBLE LEFT
VOLUME2 LEFT
VOLUME1 LOUDN. RIGHT
BASS RIGHT
TREBLE RIGHT
VOLUME2 RIGHT
MUTE
Front
Rear
INCREDIBLE SURROUND
HEADPHONE AMP.
CD STANDBY SWITCH
MUTE
HP SOCKET (Dia. 3.5mm)
TO CONNECTOR 71
AUX SOCKET
AUX
NOT FOR MIDI
TO AF3
SUB-WOOFER OUT (SW)
TO CONNECTOR 1521
STBY ON " PLOP KILLER " FOR HEADPHONE
EMC PROVISION
TO POWER
70W/100W
12W/18W

LEGEND :
DP : DOLBY PROLOGIC
SA : SPECTRUM ANALYSER
NK : NON KARAOKE
SK : SIMPLE KARAOKE
FK : FULL FEATURE KARAOKE
HP : HEADPHONE
: PROVISION ON LAYOUT
* : INCREDIBLE SURROUND
LO : LINE OUT
⊠ : SK/(FK+LO)/DP/(NK+LO)
SW : SUB-WOOFER OUT

FOR MIDI ONLY	
ITEM	VALUE
3587,3588	100k
3614,3615	-
3616,3617	56k
2605,2606	-

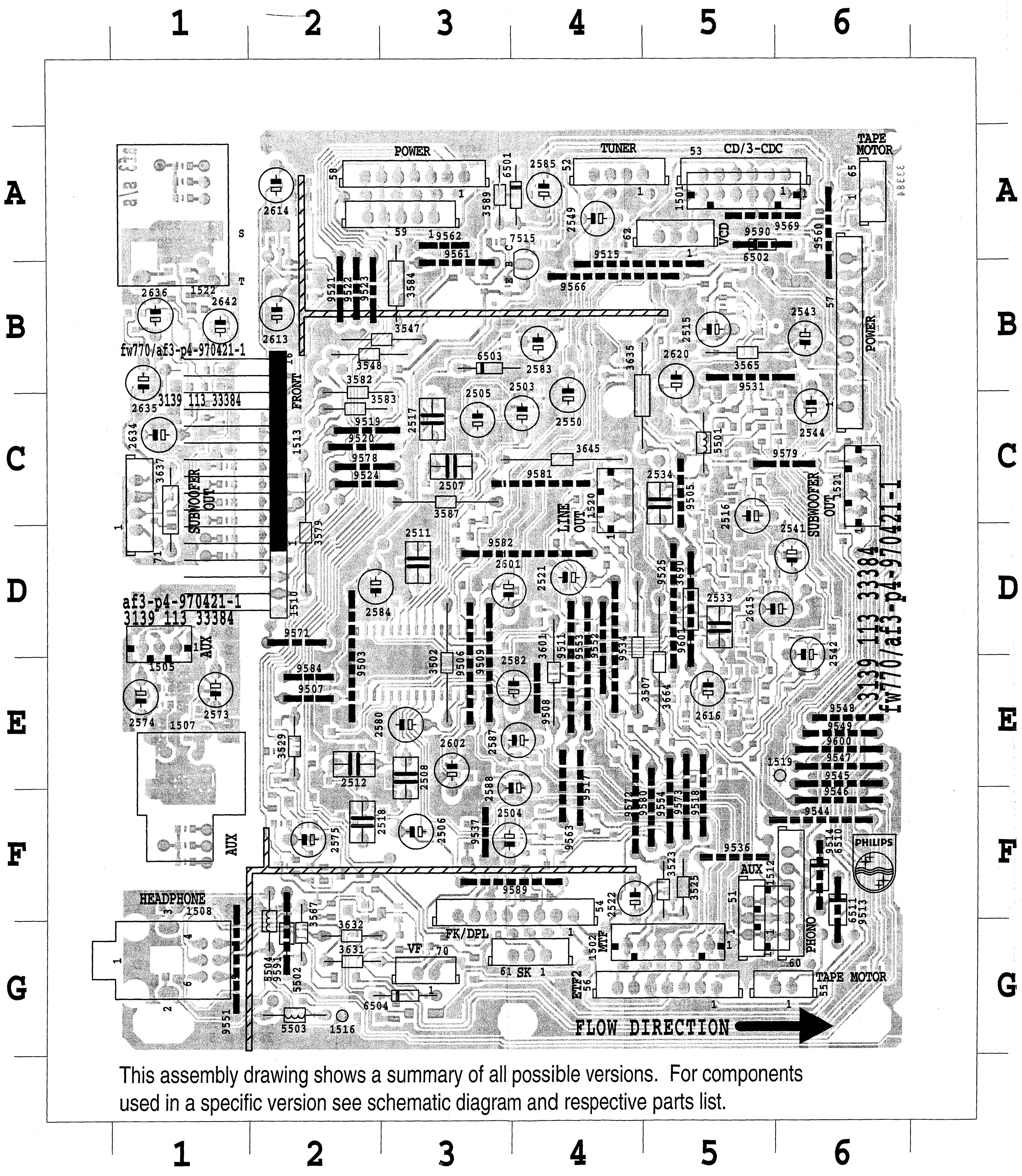
FOR MIDI ONLY	
ITEM	VALUE
3555,3556	1k8
3573,3574	8k2
3577,3578	1k
3603,3604	10k
3561,3562	27k
2541,2542	u47

Item Marked " " ●

LEGEND : ( ) NOT USED
( ) USED AS SHOWN IN SCHEMATICS

(IDENTIFICATION RESISTORS) 3674	3675	Model/Version	12NC (3139 118 xxxxx)	Remarks	2507 2508	SW	3559 3560	2613 2614	3645 3646	4545 4546	3525 3526	3663 3664	3521 3522	3523 3524	3589 2585 6501	3519 3520	3661 3662	3605 3606	1505 1507	3631 3632	4527	4574	4501 4502	4543 4544	ITEM MARK '⊠	ITEM MARK '■
1k	1k	FW770P/21,FW790P/21	89380	DP,SA,FK,SW,IS,ETF2,3CDC	220n	✓	8k2	10uF,50V	1k8	-	2k2	-	-	8k2	✓	4k7	-	2k2	✓	560R	✓	✓	-	-	✓	✓
1k	2k2	FW730C/22,FW750C/22	89890	NK,SA,SW,IS,ETF2,3CDC,LO	220n	✓	8k2	10uF,50V	-	-	2k2	1k	-	8k2	✓	-	-	-	-	560R	-	✓	✓	-	✓	-
1k	3k3	FW730C/21,FW750C/21	86980	FK,SA,SW,IS,ETF2,3CDC,LO	220n	✓	8k2	10uF,50V	47R	-	5k6	1k	-	18k	✓	-	-	-	-	560R	✓	✓	-	✓	✓	-
1k	4k7	FW780P/21	86960	DP,SA,FK,SW,IS,ETF2,3CDC,LO	220n	✓	8k2	10uF,50V	1k8	-	2k2	1k	-	8k2	✓	4k7	-	2k2	-	560R	✓	✓	-	-	✓	-
1k	6k8	FW780P/22	87210	DP,SA,SW,IS,ETF2,3CDC,LO	220n	✓	8k2	10uF,50V	1k8	-	2k2	1k	-	8k2	✓	4k7	-	1k2	-	560R	✓	✓	-	-	✓	-
1k	8k2	FW790P/22	87330	DP,SA,SW,IS,ETF2,3CDC	220n	✓	8k2	10uF,50V	1k8	-	2k2	-	-	8k2	✓	4k7	-	1k2	✓	560R	✓	✓	-	-	✓	✓
1k	10k																									
1k	15k																									
10k	1k	AS670C/41	87250	SK,IS,MTF,3CDC,SW,SA	220n	✓	8k2	-	-	-	39k	-	22k	47k	-	-	33k	22k	-	100R	-	✓	-	-	✓	-
3k3	1k	M37DC/22	89740	DP,SW,IS,ETF2,3CDC	220n	✓	8k2	10uF,50V	1k8	-	2k2	-	-	8k2	✓	4k7	-	1k2	✓	560R	✓	✓	-	-	✓	✓
3k3	2k2	FW363/21	85530	FK,IS,ETF2	100n	-	33k	-	470R	-	2k2	-	-	8k2	✓	-	-	-	✓	100R	-	-	-	✓	-	✓
3k3	3k3	FW363/22	85540	NK,IS,ETF2	100n	-	33k	-	-	-	2k2	-	-	8k2	✓	-	-	-	✓	100R	-	-	✓	-	-	✓
3k3	4k7																									

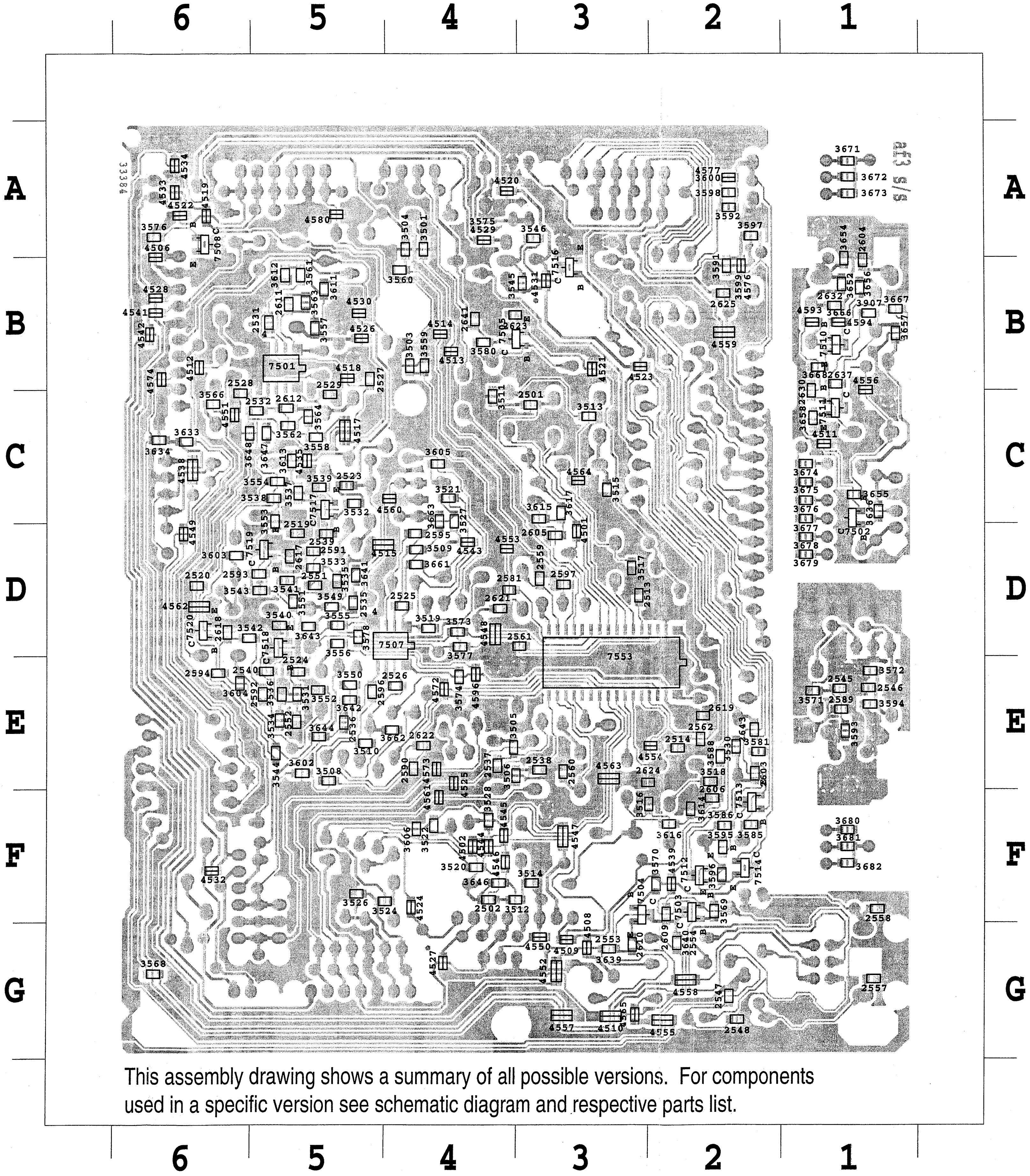
COMPONENT LAYOUT


1
2
3
4
5
6
A
B
C
D
E
F
G
POWER
TUNER
CD/3-CDC
TAPE MOTOR
FRONT
SUBWOOFER OUT
LINE OUT
AUX
HEADPHONE
FK/DPL
VF
SK
MTF
ETF2
PHONO
PHILIPS
fw770/af3-p4-970421-1
3139 113 33384
af3-p4-970421-1
FLOW DIRECTION

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

51	F	5
52	A	4
53	A	5
54	F	4
55	G	6
56	G	5
57	B	6
58	A	3
59	A	3
60	F	6
61	G	4
62	A	5
65	A	6
70	G	3
71	C	1
1501	A	5
1502	G	5
1505	D	1
1507	E	1
1508	G	1
1510	C	2
1512	F	5
1513	C	2
1516	G	2
1518	E	6
1520	C	4
1521	C	6
1522	A	1
2503	C	4
2504	F	3
2505	C	3
2506	F	3
2507	C	3
2508	E	3
2511	D	3
2512	E	2
2515	B	5
2516	C	5
2517	C	3
2518	F	2
2521	D	4
2522	F	4
2533	D	5
2534	C	5
2541	D	6
2542	D	6
2543	B	6
2544	C	6
2549	A	4
2550	C	4
2573	E	1
2574	E	1
2575	F	2
2580	E	3
2582	E	3
2583	B	4
2584	D	2
2585	A	4
2587	E	4
2588	F	4
2601	D	3
2602	E	3
2613	B	2
2614	A	2
2615	D	6
2616	E	5
2620	B	5
2634	C	1
2635	B	1
2636	B	1
2642	B	1
3502	E	3
3507	D	4
3523	F	5
3525	F	5
3529	E	2
3547	B	2
3548	B	2
3565	B	5
3567	G	2
3579	D	2
3582	C	2
3583	C	2
3584	B	3
3587	C	3
3589	A	3
3601	E	4
3631	G	2
3632	G	2
3635	C	4
3637	C	1
3645	C	4
3664	E	5
5501	C	5
5502	G	2
5503	G	2
5504	G	2
6501	A	4
6502	A	5
6503	B	3
6504	G	3
6510	F	6
6511	F	6
7515	B	4
9503	E	2
9505	C	5
9506	E	3
9507	E	2
9508	E	4
9509	E	3
9511	E	4
9513	F	6
9514	F	6
9515	B	4
9517	F	4
9518	F	5
9519	C	2
9520	C	2
9521	B	2
9522	B	2
9523	B	2
9524	C	2
9525	D	5
9531	B	5
9534	D	4
9536	F	5
9537	F	3
9544	F	6
9545	E	6
9546	F	6
9547	E	6
9548	E	6
9549	E	6
9551	G	1
9552	D	4
9553	E	4
9554	F	5
9560	A	6
9561	B	3
9562	A	3
9563	E	4
9566	B	4
9569	A	5
9571	D	2
9572	F	4
9573	F	5
9578	C	2
9579	C	6
9580	F	5
9581	C	4
9582	D	4
9584	E	2
9589	F	3
9590	A	5
9591	G	2
9600	E	6
9601	D	5

CHIP LAYOUT



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

2501	C	3
2502	F	4
2513	D	3
2514	E	2
2519	D	5
2520	D	6
2523	C	5
2524	E	5
2525	D	4
2526	E	4
2527	B	5
2528	C	6
2529	C	5
2531	B	5
2532	C	5
2535	D	5
2536	E	5
2537	E	4
2538	E	3
2539	D	5
2540	E	5
2545	E	1
2546	E	1
2547	G	2
2548	G	2
2551	D	5
2552	E	5
2553	G	3
2554	G	2
2557	G	1
2558	F	1
2559	D	3
2560	E	3
2561	D	3
2562	E	2
2581	D	4
2589	E	1
2590	E	4
2591	D	5
2592	E	5
2593	D	5
2594	E	6
2595	D	4
2596	E	5
2597	D	3
2603	E	2
2604	B	1
2605	D	3
2606	F	2
2609	F	2
2610	G	3
2611	B	5
2612	C	5
2617	D	5
2618	D	6
2619	E	2
2621	D	4
2622	E	4
2623	B	4
2624	E	3
2625	B	2
2630	C	1
2632	B	1
2637	B	1
2641	B	4
2643	E	2
3501	A	4
3503	B	4
3504	A	4
3505	E	4
3506	E	4
3508	E	5
3509	D	4
3510	E	5
3511	C	4
3512	F	4
3513	C	3
3514	F	3
3515	C	3
3516	F	3
3517	D	3
3518	E	2
3519	D	4
3520	F	4
3521	C	4
3522	F	4
3524	F	4
3526	F	5
3527	C	4
3528	F	4
3530	E	2
3531	E	5
3532	C	5
3533	D	5
3534	E	5
3535	D	5
3536	E	5
3537	C	5
3538	C	5
3539	C	5
3540	D	5
3541	D	5
3542	D	6
3543	D	5
3544	E	5
3545	B	3
3546	A	3
3549	D	5
3550	E	5
3551	D	5
3552	E	5
3553	C	5
3554	C	5
3555	D	5
3556	D	5
3557	B	5
3558	C	5
3559	B	4
3560	B	4
3561	B	5
3562	C	5
3563	B	5
3564	C	5
3566	C	6
3568	G	6
3569	F	2
3570	F	2
3571	E	1
3572	E	1
3573	D	4
3574	E	4
3575	A	4
3576	A	6
3577	D	4
3578	D	5
3580	B	4
3581	E	2
3585	F	2
3586	F	2
3588	E	2
3591	B	2
3592	A	2
3593	E	1
3594	E	1
3595	F	2
3596	F	2
3597	A	2
3598	A	2
3599	B	2
3600	A	2
3602	E	5
3603	D	6
3604	E	6
3605	C	4
3606	F	4
3611	B	5
3612	B	5
3613	C	5
3614	F	2
3615	C	3
3616	F	2
3617	C	3
3633	C	6
3634	C	6
3636	C	1
3639	G	3
3640	G	2
3641	D	5
3642	E	5
3643	D	5
3644	E	5
3646	F	4
3647	C	5
3648	C	6
3652	B	1
3654	B	1
3655	C	1
3656	B	1
3657	B	1
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4529	A	4
4530	B	5
4531	B	3
4532	F	6
4533	A	6
4534	A	6
4535	C	5
4538	C	6
4539	F	2
4541	B	6

ELECTRICAL PART LIST - AF3 BOARD

MISCELLANEOS

1507	4822 265 20553	AUX SOCKET
1508	4822 267 40898	Headphone Socket
1510	4822 265 41325	16 Pin Connector

CAPACITORS

2501	4822 122 33336	8,2nF 10% 50V
2502	4822 122 33336	8,2nF 10% 50V
2503	4822 124 41407	0,47µF 20% 63V
2504	4822 124 41407	0,47µF 20% 63V
2505	4822 124 40746	0,22µF 20% 63V
2506	4822 124 40746	0,22µF 20% 63V
2507	4822 121 42408	220nF 5% 63V
2508	4822 121 42408	220nF 5% 63V
2511	4822 121 51252	470nF 5% 63V
2512	4822 121 51252	470nF 5% 63V
2513	4822 122 32646	5,6nF 10% 50V
2514	4822 122 32646	5,6nF 10% 50V
2515	4822 124 40433	47µF 20% 25V
2516	4822 124 81029	100µF 20% 25V
2517	4822 121 51252	470nF 5% 63V
2518	4822 121 51252	470nF 5% 63V
2519	5322 122 32268	470pF 10% 50V
2520	5322 122 32268	470pF 10% 50V
2521	4822 124 41751	47µF 20% 50V
2522	4822 124 41751	47µF 20% 50V
2523	4822 122 33342	33nF 10% 63V
2524	4822 122 33342	33nF 10% 63V
2525	5322 122 32658	22pF 5% 50V
2529	5322 122 32654	22nF 10% 63V
2531	5322 122 32268	470pF 10% 50V
2532	5322 122 32268	470pF 10% 50V
2533	4822 121 51252	470nF 5% 63V
2534	4822 121 51252	470nF 5% 63V
2535	4822 122 33219	1,8nF 10% 50V
2536	4822 122 33219	1,8nF 10% 50V
2537	5322 122 32531	100pF 5% 50V
2538	5322 122 32531	100pF 5% 50V
2539	4822 122 33891	3,3nF 10% 63V
2540	4822 122 33891	3,3nF 10% 63V
2541	4822 124 41751	47µF 20% 50V
2542	4822 124 41751	47µF 20% 50V
2543	4822 124 41751	47µF 20% 50V
2544	4822 124 41751	47µF 20% 50V
2545	5322 122 32268	470pF 10% 50V
2546	5322 122 34099	470pF 10% 63V
2547	5322 122 32654	22nF 10% 63V
2549	4822 124 40246	4,7µF 20% 63V
2550	4822 124 40246	4,7µF 20% 63V
2551	5322 122 32268	470pF 10% 50V
2552	5322 122 32268	470pF 10% 50V
2557	5322 122 32654	22nF 10% 63V
2558	5322 122 32654	22nF 10% 63V
2559	5322 122 32531	100pF 5% 50V

CAPACITORS

2560	5322 122 32531	100pF 5% 50V
2561	5322 122 34123	1nF 10% 50V
2562	5322 122 34123	1nF 10% 50V
2573	4822 124 40246	4,7µF 20% 63V
2574	4822 124 40246	4,7µF 20% 63V
2575	4822 124 40246	4,7µF 20% 63V
2580	4822 124 41751	47µF 20% 50V
2581	4822 122 33177	10nF 20% 50V
2582	4822 124 41751	47µF 20% 50V
2583	4822 124 81029	100µF 20% 25V
2584	4822 124 81029	100µF 20% 25V
2585	4822 124 41751	47µF 20% 50V
2587	4822 124 40246	4,7µF 20% 63V
2588	4822 124 40246	4,7µF 20% 63V
2589	5322 122 32654	22nF 10% 63V
2590	5322 122 32654	22nF 10% 63V
2591	4822 126 13838	100nF +80/-20% 50V
2592	4822 126 13838	100nF +80/-20% 50V
2593	4822 122 33575	220pF 5% 50V
2594	4822 122 33575	220pF 5% 50V
2595	4822 122 32535	680pF 10% 63V
2596	4822 122 32535	680pF 10% 63V
2597	4822 126 13838	100nF +80/-20% 50V
2601	4822 124 40246	4,7µF 20% 63V
2602	4822 124 40246	4,7µF 20% 63V
2603	5322 122 32531	100pF 5% 50V
2605	5322 122 32531	100pF 5% 50V
2606	5322 122 32531	100pF 5% 50V
2609	5322 122 32531	100pF 5% 50V
2610	5322 122 32531	100pF 5% 50V
2611	5322 122 32658	22pF 5% 50V
2612	5322 122 32658	22pF 5% 50V
2613	4822 124 41579	10µF 20% 50V
2614	4822 124 41579	10µF 20% 50V
2615	4822 124 40246	4,7µF 20% 63V
2616	4822 124 40246	4,7µF 20% 63V
2617	5322 122 34123	1nF 10% 50V
2618	5322 122 34123	1nF 10% 50V
2620	4822 124 40433	47µF 20% 25V
2621	5322 122 32658	22pF 5% 50V
2622	5322 122 32658	22pF 5% 50V
2623	5322 126 10223	4,7nF 10% 63V
2632	5322 122 32268	470pF 10% 50V
2641	4822 122 33175	2,2nF 20% 50V

RESISTORS

3501	4822 051 20101	100R 5% 0,1W
3502	4822 116 52175	100R 5% 0,5W
3503	4822 051 20562	5k6 5% 0,1W
3504	4822 051 20562	5k6 5% 0,1W
3505	4822 051 20332	3k3 5% 0,1W
3506	4822 051 20332	3k3 5% 0,1W
3507	4822 116 52244	15k 5% 0,5W

ELECTRICAL PART LIST - AF3 BOARD

RESISTORS

3508	4822 051 20153	15k 5% 0,1W
3509	4822 117 11149	82k 1% 0,1W
3510	4822 117 11149	82k 1% 0,1W
3511	4822 051 20223	22k 5% 0,1W
3512	4822 051 20223	22k 5% 0,1W
3513	4822 117 11449	2k2 1% 0,1W
3514	4822 117 11449	2k2 1% 0,1W
3515	4822 051 20472	4k7 5% 0,1W
3516	4822 051 20472	4k7 5% 0,1W
3517	4822 051 20472	4k7 5% 0,1W
3518	4822 051 20472	4k7 5% 0,1W
3523	4822 116 52303	8k2 5% 0,5W
3524	4822 051 20822	8k2 5% 0,1W
3525	4822 116 52256	2k2 5% 0,5W
3526	4822 117 11449	2k2 1% 0,1W
3527	4822 051 20223	22k 5% 0,1W
3528	4822 051 20223	22k 5% 0,1W
3531	4822 051 20562	5k6 5% 0,1W
3532	4822 051 20562	5k6 5% 0,1W
3533	4822 051 20684	680k 5% 0,1W
3534	4822 051 20684	680k 5% 0,1W
3535	4822 051 20224	220k 5% 0,1W
3536	4822 051 20224	220k 5% 0,1W
3537	4822 117 10833	10k 1% 0,1W
3538	4822 117 10833	10k 1% 0,1W
3539	4822 117 10833	10k 1% 0,1W
3540	4822 117 10833	10k 1% 0,1W
3541	4822 051 20822	8k2 5% 0,1W
3542	4822 051 20822	8k2 5% 0,1W
3543	4822 051 20473	47k 1% 0.1W.
3544	4822 051 20473	47k 1% 0.1W.
3545	4822 051 20562	5k6 5% 0,1W
3546	4822 051 20562	5k6 5% 0,1W
3547	4822 116 83864	10k 5% 0,5W
3548	4822 116 52256	2k2 5% 0,5W
3549	4822 051 20562	5k6 5% 0,1W
3550	4822 051 20562	5k6 5% 0,1W
3551	4822 051 20822	8k2 5% 0,1W
3552	4822 051 20822	8k2 5% 0,1W
3553	4822 051 10102	1k 2% 0,25W
3554	4822 051 10102	1k 2% 0,25W
3555	4822 051 20821	820R 5% 0,1W
3556	4822 051 20821	820R 5% 0,1W
3557	4822 051 20273	27k 5% 0,1W
3558	4822 051 20273	27k 5% 0,1W
3559	4822 051 20822	8k2 5% 0,1W
3560	4822 051 20822	8k2 5% 0,1W
3561	4822 117 11449	2k2 1% 0,1W
3562	4822 117 11449	2k2 1% 0,1W
3563	4822 051 20154	150k 5% 0,1W
3564	4822 051 20154	150k 5% 0,1W
3565	4822 116 52195	47R 5% 0,5W
3566	4822 051 20479	47R 5% 0,1W

RESISTORS

3567	4822 116 52195	47R 5% 0,5W
3568	4822 051 20479	47R 5% 0,1W
3569	4822 051 10102	1k 2% 0,25W
3570	4822 051 10102	1k 2% 0,25W
3571	4822 117 11149	82k 1% 0,1W
3572	4822 117 11149	82k 1% 0,1W
3573	4822 117 11503	220R 1% 0.1W
3574	4822 117 11503	220R 1% 0.1W
3575	4822 051 20228	2R2 5% 0,1W
3577	4822 051 20332	3k3 5% 0,1W
3578	4822 051 20332	3k3 5% 0,1W
3579	4822 116 83864	10k 5% 0,5W
3580	4822 051 20272	2k7 5% 0,1W
3581	4822 117 10833	10k 1% 0,1W
3582	4822 050 11002	1k 1% 0,4W
3583	4822 050 11002	1k 1% 0,4W
3584	4822 050 24705	4M7 1% 0,6W
3585	4822 051 20472	4k7 5% 0,1W
3586	4822 051 10102	1k 2% 0,25W
3587	4822 116 83874	220k 5% 0,5W
3588	4822 051 20224	220k 5% 0,1W
3589	4822 116 52289	5k6 5% 0,5W
3593	4822 051 10102	1k 2% 0,25W
3594	4822 051 10102	1k 2% 0,25W
3595	4822 051 20562	5k6 5% 0,1W
3601	4822 116 52304	82k 5% 0,5W
3602	4822 117 11149	82k 1% 0,1W
3603	4822 117 11139	1k5 1% 0,1W
3604	4822 117 11139	1k5 1% 0,1W
3611	4822 051 20392	3k9 5% 0,1W
3612	4822 051 20472	4k7 5% 0,1W
3613	4822 051 20821	820R 5% 0,1W
3614	4822 117 10833	10k 1% 0,1W
3615	4822 117 10833	10k 1% 0,1W
3616	4822 051 20104	100k 5% 0,1W
3617	4822 051 20104	100k 5% 0,1W
3631	4822 116 52226	560R 5% 0,5W
3632	4822 116 52226	560R 5% 0,5W
3635	4822 052 10109 ⚠	10R 5% 0,33W
3641	4822 051 20562	5k6 5% 0,1W
3642	4822 051 20562	5k6 5% 0,1W
3643	4822 051 20822	8k2 5% 0,1W
3644	4822 051 20822	8k2 5% 0,1W
3647	4822 051 20101	100R 5% 0,1W
3648	4822 051 20101	100R 5% 0,1W
3652	4822 051 10102	1k 2% 0,25W
3655	4822 051 20472	4k7 5% 0,1W
3674	4822 051 10102	1k 2% 0,25W
3675	4822 117 11449	2k2 1% 0,1W
4501	4822 051 20008	0R Jumper 0805
4502	4822 051 20008	0R Jumper 0805
4506	4822 051 20008	0R Jumper 0805
4508	4822 051 20008	0R Jumper 0805

ELECTRICAL PART LIST - AF3 BOARD

RESISTORS

4509	4822 051 20008	0R Jumper 0805
4510	4822 051 10008	0R Jumper 1206
4512	4822 051 20008	0R Jumper 0805
4513	4822 051 20008	0R Jumper 0805
4514	4822 051 20008	0R Jumper 0805
4515	4822 051 10008	0R Jumper 1206
4517	4822 051 10008	0R Jumper 1206
4518	4822 051 20008	0R Jumper 0805
4519	4822 051 20008	0R Jumper 0805
4520	4822 051 20008	0R Jumper 0805
4521	4822 051 20008	0R Jumper 0805
4522	4822 051 20008	0R Jumper 0805
4523	4822 051 20008	0R Jumper 0805
4524	4822 051 20008	0R Jumper 0805
4525	4822 051 20008	0R Jumper 0805
4526	4822 051 20008	0R Jumper 0805
4528	4822 051 20008	0R Jumper 0805
4530	4822 051 20008	0R Jumper 0805
4531	4822 051 20008	0R Jumper 0805
4532	4822 051 20008	0R Jumper 0805
4533	4822 051 20008	0R Jumper 0805
4534	4822 051 20008	0R Jumper 0805
4535	4822 051 20008	0R Jumper 0805
4538	4822 051 10008	0R Jumper 1206
4539	4822 051 20008	0R Jumper 0805
4541	4822 051 20008	0R Jumper 0805
4542	4822 051 20008	0R Jumper 0805
4547	4822 051 10008	0R Jumper 1206
4548	4822 051 10008	0R Jumper 1206
4549	4822 051 20008	0R Jumper 0805
4550	4822 051 20008	0R Jumper 0805
4551	4822 051 20008	0R Jumper 0805
4552	4822 051 10008	0R Jumper 1206
4553	4822 051 20008	0R Jumper 0805
4554	4822 051 20008	0R Jumper 0805
4555	4822 051 10008	0R Jumper 1206
4557	4822 051 10008	0R Jumper 1206
4558	4822 051 10008	0R Jumper 1206
4559	4822 051 10008	0R Jumper 1206
4560	4822 051 20008	0R Jumper 0805
4561	4822 051 20008	0R Jumper 0805
4562	4822 051 10008	0R Jumper 1206
4564	4822 051 20008	0R Jumper 0805
4572	4822 051 20008	0R Jumper 0805
4573	4822 051 20008	0R Jumper 0805
4574	4822 051 20008	0R Jumper 0805
4576	4822 051 20008	0R Jumper 0805
4577	4822 051 20008	0R Jumper 0805
4580	4822 051 20008	0R Jumper 0805
4596	4822 051 20008	0R Jumper 0805

COILS & FILTERS

5501	4822 156 21721	Coil 2,2μH 10%
5502	4822 156 21721	Coil 2,2μH 10%
5503	4822 156 21721	Coil 2,2μH 10%
5504	4822 156 21721	Coil 2,2μH 10%

DIODES

6501	4822 130 30862	BZX79-B9V1
6503	4822 130 30862	BZX79-B9V1
6510	5322 130 30684	1N4002RL
6511	5322 130 30684	1N4002RL

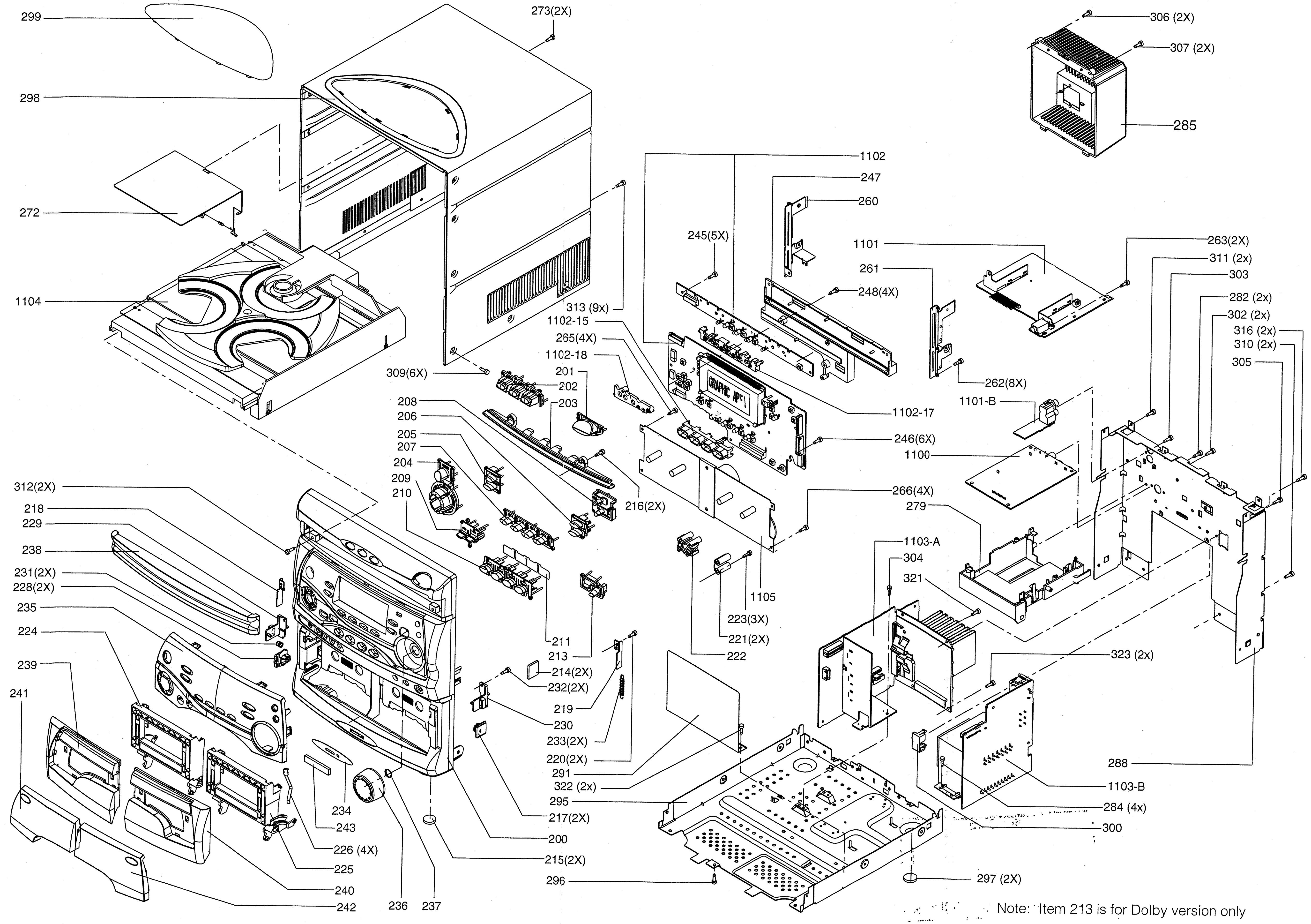
TRANSISTORS & INTEGRATED CIRCUITS

7501	4822 209 31378	NJM4556MB
7503	4822 130 42615	BC817-40
7504	4822 130 42615	BC817-40
7505	5322 130 42755	BC847C
7507	4822 209 83357	NJM4560M
7512	5322 130 42755	BC847C
7513	5322 130 42755	BC847C
7514	5322 130 60508	BC857B
7515	4822 130 41327	BC327-40
7516	5322 130 42755	BC847C
7517	5322 130 42755	BC847C
7518	5322 130 42755	BC847C
7519	5322 130 42755	BC847C
7520	5322 130 42755	BC847C
7553	4822 209 33652	TEA6321T/V1

Note : Only the parts mentioned in this list are normal service spare parts

13-1

13-1


299
298
272
1104
273(2X)
306 (2X)
307 (2X)
285
1102
247
260
245(5X)
1101
263(2X)
311 (2x)
303
261
248(4X)
282 (2x)
302 (2x)
316 (2x)
310 (2x)
305
313 (9x)
1102-15
265(4X)
1102-18
201
202
203
309(6X)
262(8X)
1101-B
1102-17
246(6X)
1100
208
206
205
207
204
209
210
216(2X)
266(4X)
279
312(2X)
218
229
238
231(2X)
228(2X)
235
224
239
241
1103-A
304
321
1105
223(3X)
221(2X)
222
211
213
214(2X)
232(2X)
219
230
233(2X)
220(2X)
291
322 (2x)
295
217(2X)
200
215(2X)
296
323 (2x)
288
1103-B
284 (4x)
300
297 (2X)
234
243
226 (4X)
225
240
242
236
237

Note: Item 213 is for Dolby version only

PCS 96 763

MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT

200	4822 459 04661	Cabinet Front
200	4822 459 04682	Cabinet Front /..S
201	4822 410 10875	Button Open/Close
201	4822 410 11024	Button Open/Close /..S
202	4822 410 10878	Button Set CDC
203	4822 466 11392	Light Guide CDC /..S
204	4822 410 11025	Button Power/DSC
205	4822 410 10881	Button Set Display Left
206	4822 410 10882	Button Set Display Right
207	4822 410 10883	Button Set Display
208	4822 410 10884	Button Set Clock/Demo
209	4822 410 10885	Button Set DBB/IS
210	4822 410 10886	Button Set Mode
215	4822 462 40683	Plate (Foot)
217	4822 529 10322	Damper Assy
224	4822 443 10487	Door Cassette Left
225	4822 443 10488	Door Cassette Right
226	4822 492 42787	Spring Cassette
228	4822 402 10621	Push-Catch
231	4822 492 11344	Spring Compression
233	4822 492 11345	Spring Tension
235	4822 450 10373	Window Display
236	4822 410 11002	Knob Volume
237	4822 492 51374	Ring
238	4822 442 00667	Cover Door CDC
238	4822 442 01035	Cover Door CDC /..S
239	4822 442 00773	Cover Door Cassette Left
239	4822 442 00845	Cover Door Cassette Left /..S
240	4822 442 00669	Cover Door Cassette Right
240	4822 443 10556	Cover Door Cassette Right /..S
241	4822 450 10228	Window Cassette Left
242	4822 450 10229	Window Cassette Right
243	4822 459 11055	Badge Philips Assy
297	4822 462 40683	Plate (Foot)
298	4822 426 10069	Cabinet Rear
298	4822 426 10371	Cabinet Rear /..S
299	4822 450 10226	Window CDC
300	4822 402 10288	Bracket Mains Socket
350	4822 445 10665	Loudspeaker Box
350	4822 445 10674	Loudspeaker Box /..S
351	4822 303 50063	FM Aerial
356	4822 219 10181	RC0781/01
384	4822 303 50082	AM Frame
385	4822 321 10954 ⚠	Mains Cord /30/30S
385	4822 321 10249 ⚠	Mains Cord /21S
387	4822 736 15527	Instruction For Use /30/30S
387	4822 736 15572	Instruction For Use /21S
1008	4822 146 10492 ⚠	Mains Transformer

Note: Only the parts mentioned in this list are normal service spare parts.

SCREW LISTS - MAIN UNIT

216	D3 x 10
220	D3 x 10
223	D3 x 30
232	D3 x 10
245	D3 x 12
246	D3 x 12
248	D3 x 12
262	D3 x 12
263	D3 x 12
265	D3 x 12
266	D3 x 30
273	M3 x 10
282	D3 x 8
284	M3 x 6
296	M3 x 10
302	D3 x 12
303	D3 x 12
304	M3 x 6
305	D3 x 12
306	M3 x 6
307	D3 x 10
309	M3 x 10
310	M3 x 6
311	D3 x 10
312	D3 x 10
313	M3 x 10
316	M3 x 10
321	M3 x 10
322	M3 x 6
323	M3 x 6

FW710C

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Service
Service
Service

Product Service Group CE Audio

Service Information

Already published Service Informations:

CORRECTIONS TO SERVICE MANUAL

- **FRONT BOARD** Chapter 6A
  The schematics and layout drawings on page 6-1 to 6-4 are incorrect because unreleased drawings are used. Enclosed is the updated replacement sheet for you service manual. Do destroy the existing sheet to prevent confusion.

CHANGES DURING PRODUCTION

FRONT BOARD

- From production week 9740 onwards the µProcessor IC 7441 is change to masked 3A to improve the HVC detection zone - except /22../25.. versions. The new IC is

  7441 4822 209 15908 TMP78CS71AF - 770S51561

ETF2 TAPE MODULE

- From production week 9730 onwards the undermentioned is change to solve auto-stop problem by increasing the EOT signal level.

Change	3689 to 15k 5% 0,1W	4822 051 20153
	3759 to 15k 5% 0,1W	4822 051 20153

- From production week 9732 onwards layout stage .5 is implemented to playback distortion by connecting transistor 7787 collector to before resistor 3765 (pin 2 of 7720) instead of after.

CDC-3 MODULE

A new CDC-3 Module is introduced into the set from production week: 9736 for sets serial no. RZ......
9738 for sets serial no. SV......
9742 for sets serial no. KT......

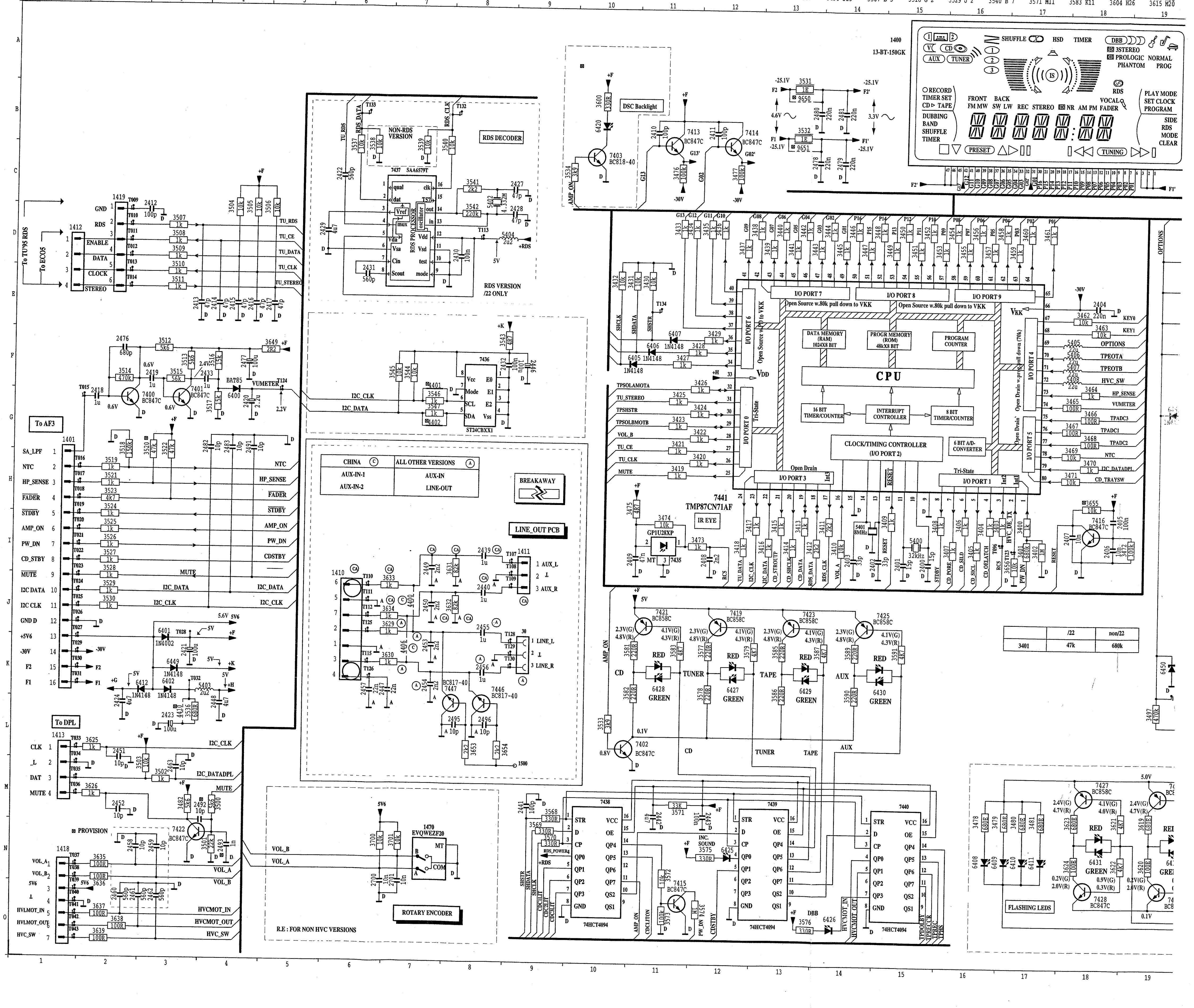
The electrical schematics, layout, exploded view, etc are enclosed.

1997 - 08 - 19

4822 725 25751

FRONT CIRCUIT *(N0N-HVC VERSION)*

1400	A15
1401	G 1
1403	E27
1404	H28
1405	M23
1410	I 6
1411	I 9
1412	D 1
1413	L 1
1416	M28
1417	M27
1418	N 1
1419	C 2
1440	J21
1441	J21
1442	H21
1443	H21
1444	D21
1445	E22
1446	E21
1447	E22
1448	F21
1449	F22
1450	F21
1451	F22
1452	E21
1453	G21
1454	G21
1455	H21
1456	G21
1457	I21
1458	I21
1459	I21
1460	I21
1461	D21
1462	E21
1463	D21
1464	N22
1465	N22
1466	M22
1467	M22
1470	N 7
1500	M 9
2400	I15
2401	I15
2402	I14
2403	I14
2404	E18
2405	H18
2406	I18
2407	I18
2408	I12
2409	I11
2410	B11
2411	B12
2412	D 3
2413	E 3
2414	E 4
2415	E 4
2416	E 4
2417	E 5
2418	F 2
2419	F 3
2420	G 4
2421	K 3
2422	C 6
2423	L 3
2424	L 2
2425	G26
2427	C 9
2428	D 9
2429	D 5
2430	D 8
2431	E 6
2432	F 8
2433	F 4
2439	I 8
2440	J 8
2441	M 9
2442	M11
2443	M12
2444	A25
2445	B25
2446	F 9
2447	K 6
2448	L 4
2449	I 7
2450	J 7
2451	L 2
2452	M 2
2453	K 7
2454	K 7
2455	J 8
2456	K 8
2457	K 6
2458	N 2
2459	N 3
2460	O 2
2461	O 2
2462	O 3
2463	M 3
2464	M25
2465	M25
2466	M26
2467	O25
2468	O25
2469	O26
2470	K24
2471	K25
2472	K25
2473	K25
2474	K26
2475	K26
2476	F 2
2477	F 4
2478	C13
2479	C14
2480	B13
2481	B14
2482	G 3
2483	G 4
2486	E24
2487	E25
2488	E25
2489	E25
2490	E24
2491	G 4
2492	M 4
2493	N 4
2495	L 8
2496	L 8
25	A26
2700	N 6
2701	N 7
30	J 9
3400	I17
3401	I17
3402	I17
3403	I16
3404	I16
3405	I16
3406	I16
3407	I16
3408	I15
3409	H15
3410	I14
3411	I14
3412	I13
3413	I13
3414	I13
3415	I13
3416	I13
3417	I12
3418	I12
3419	H11
3420	H12
3421	G11
3422	G12
3423	G11
3424	G12
3425	G11
3426	F12
3427	F11
3428	F12
3429	F12
3430	E11
3431	E10
3432	E10
3433	D11
3434	D11
3435	D12
3436	D12
3437	D12
3438	D12
3439	D13
3440	D13
3441	D13
3442	D13
3443	D13
3444	D14
3445	D14
3446	D14
3447	D14
3448	D14
3449	D15
3450	D15
3451	D15
3452	D15
3453	D15
3454	D16
3455	D16
3456	D16
3457	D16
3458	D16
3459	D17
3460	D17
3461	D17
3462	E18
3463	E18
3464	F18
3465	G18
3466	G18
3467	G18
3468	G18
3469	G18
3470	H18
3471	H18
3472	I19
3473	I12
3474	I11
3475	H10
3476	C11
3477	C12
3478	M16
3479	M16
3480	M17
3481	M17
3482	M 3
3483	G26
3484	D22
3485	E22
3486	E22
3487	F22
3488	F22
3489	G22
3490	G22
3491	H22
3492	H23
3493	I23
3494	I23
3496	J23
3497	L19
3498	L20
3499	L21
3500	M 4
3501	N 4
3502	M 3
3503	M 3
3504	D 4
3505	D 4
3506	D 4
3507	D 3
3508	D 3
3509	D 3
3510	E 3
3511	E 3
3512	F 3
3513	F 3
3514	F 2
3515	F 3
3516	F 4
3517	G 4
3518	G 2
3519	H 2
3520	G 3
3521	H 2
3522	G 3
3523	H 2
3524	H 2
3525	I 2
3526	I 2
3527	I 2
3528	I 2
3529	J 2
3530	J 2
3531	A13
3532	B13
3533	L10
3534	C 9
3535	G24
3536	L 3
3537	C 6
3538	B 6
3539	B 7
3540	B 7
3541	C 8
3542	D 8
3543	F 8
3544	F 7
3545	F 7
3546	G 7
3547	G 7
3568	M 9
3569	N 9
3570	N 9
3571	M11
3572	N11
3573	O11
3574	O12
3575	N12
3576	O13
3577	K12
3578	K12
3579	K12
3581	K10
3582	K10
3583	K11
3585	K13
3586	K13
3587	K14
3589	K14
3590	K14
3591	K15
3600	B10
3601	C25
3602	E27
3603	E26
3604	H26
3605	H26
3606	I26
3607	H25
3608	H25
3609	I25
3610	M27
3611	M26
3612	N27
3613	M21
3614	N21
3615	M20


1400
13-BT-150GK
SHUFFLE
HSD
TIMER
DBB
3STEREO
PROLOGIC
NORMAL
PHANTOM
PROG
RECORD
TIMER SET
CD▷ TAPE
DUBBING
BAND
SHUFFLE
TIMER
FRONT
BACK
FM MW
SW LW
REC
STEREO
NR
AM PM
FADER
RDS
VOCAL
PLAY MODE
SET CLOCK
PROGRAM
SIDE
MODE
CLEAR
PRESET
TUNING
DSC Backlight
RDS DECODER
NON-RDS VERSION
SAA6579T
RDS VERSION /22 ONLY
To TU95 RDS
To ECO5
ENABLE
DATA
CLOCK
STEREO
TU_RDS
TU_CE
TU_DATA
TU_CLK
TU_STEREO
VUMETER
To AF3
SA_LPF
NTC
HP_SENSE
FADER
STDBY
AMP_ON
PW_DN
CD_STBY
MUTE
I2C DATA
I2C CLK
GND D
+5V6
-30V
F2
F1
ST24C08XX1
I2C_CLK
I2C_DATA
CHINA
ALL OTHER VERSIONS
AUX-IN-1
AUX-IN-2
AUX-IN
LINE-OUT
BREAKAWAY
LINE_OUT PCB
AUX_L
AUX_R
LINE_L
LINE_R
To DPL
CLK
DAT
I2C_DATADPL
PROVISION
VOL_A
VOL_B
HVLMOT_IN
HVLMOT_OUT
HVC_SW
HVCMOT_IN
HVCMOT_OUT
EVQWEZF20
ROTARY ENCODER
R.E : FOR NON HVC VERSIONS
7441
TMP87CN71AF
I/O PORT 7
I/O PORT 8
I/O PORT 9
I/O PORT 6
I/O PORT 4
I/O PORT 5
I/O PORT 0
I/O PORT 3
I/O PORT 1
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48kX8 BIT
PROGRAM COUNTER
CPU
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
Open Source w.80k pull down to VKK
VDD
VKK
Tri-State
Open Drain
KEY0
KEY1
OPTIONS
TPEOTA
TPEOTB
HVC_SW
HP_SENSE
VUMETER
TPADC3
TPADC1
TPADC2
NTC
I2C_DATADPL
CD_TRAYSW
IR EYE
GP1U28XP
8MHz
32kHz
RESET
74HCT4094
RED
GREEN
CD
TUNER
TAPE
AUX
DBB
INC. SOUND
FLASHING LEDS
TPSOLAMOTA
TU_STEREO
TPSHSTR
TPSHLBMOTB
VOL_B
TU_CE
TU_CLK
MUTE

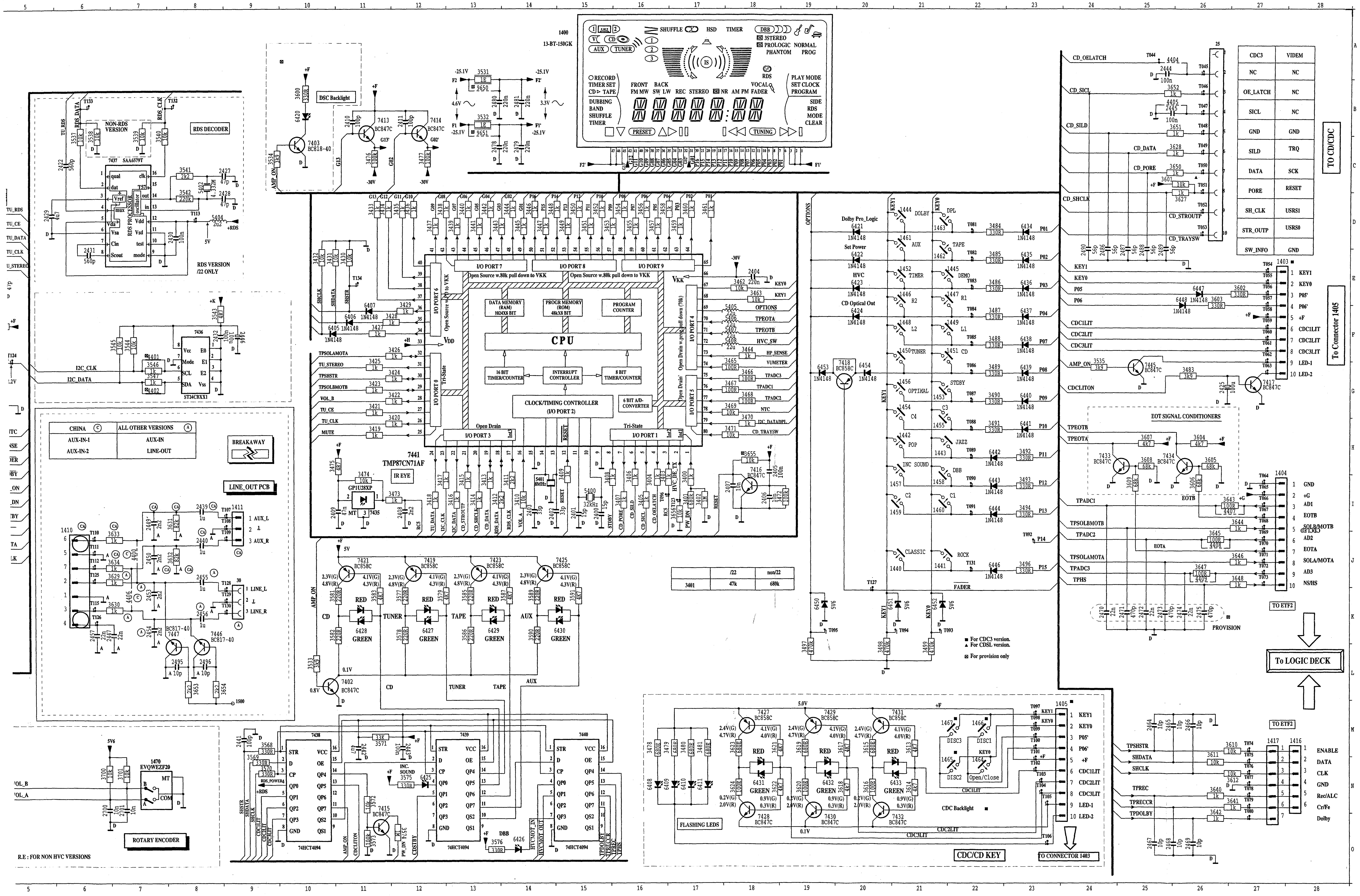
	/22	non/22
3401	47k	680k

2440 J 8	2451 L 2	2462 O 3	2473 K25	2486 E24	2700 N 6	3408 I15	3419 H11	3430 E11	3441 D13
2441 M 9	2452 M 2	2463 M 3	2474 K26	2487 E25	2701 N 7	3409 H15	3420 H12	3431 E10	3442 D13
2442 M11	2453 K 7	2464 M25	2475 K26	2488 E25	30 J 9	3410 I14	3421 G11	3432 E10	3443 D13
2443 M12	2454 K 7	2465 M25	2476 F 2	2489 E25	3400 I17	3411 I14	3422 G12	3433 D11	3444 D14
2444 A25	2455 J 8	2466 M26	2477 F 4	2490 E24	3401 I17	3412 I13	3423 G11	3434 D11	3445 D14
2445 B25	2456 K 8	2467 O25	2478 C13	2491 G 4	3402 I17	3413 I13	3424 G12	3435 D12	3446 D14
2446 F 9	2457 K 6	2468 O25	2479 C14	2492 M 4	3403 I16	3414 I13	3425 G11	3436 D12	3447 D14
2447 K 6	2458 N 2	2469 O26	2480 B13	2493 N 4	3404 I16	3415 I13	3426 F12	3437 D12	3448 D14
2448 L 4	2459 N 3	2470 K24	2481 B14	2495 L 8	3405 I16	3416 I13	3427 F11	3438 D12	3449 D15
2449 I 7	2460 O 2	2471 K25	2482 G 3	2496 L 8	3406 I16	3417 I12	3428 F12	3439 D13	3450 D15
2450 J 7	2461 O 2	2472 K25	2483 G 4	25 A26	3407 I16	3418 I12	3429 F12	3440 D13	3451 D15

3452 D15	3463 E18	3474 I11	3485 E22	3497 L19	3508 D 3	3519 H 2	3530 J 2	3541 C 8	3572 N11
3453 D15	3464 F18	3475 H10	3486 E22	3498 L20	3509 D 3	3520 G 3	3531 A13	3542 D 8	3573 O11
3454 D16	3465 G18	3476 C11	3487 F22	3499 L21	3510 E 3	3521 H 2	3532 B13	3543 F 8	3574 O12
3455 D16	3466 G18	3477 C12	3488 F22	3500 M 4	3511 E 3	3522 G 3	3533 L10	3544 F 7	3575 N12
3456 D16	3467 G18	3478 M16	3489 G22	3501 N 4	3512 F 3	3523 H 2	3534 C 9	3545 F 7	3576 O13
3457 D16	3468 G18	3479 M16	3490 G22	3502 M 3	3513 F 3	3524 H 2	3535 G24	3546 G 7	3577 K12
3458 D16	3469 G18	3480 M17	3491 H22	3503 M 3	3514 F 2	3525 I 2	3536 L 3	3547 G 7	3578 K12
3459 D17	3470 H18	3481 M17	3492 H23	3504 D 4	3515 F 3	3526 I 2	3537 C 6	3568 M 9	3579 K12
3460 D17	3471 H18	3482 M 3	3493 I23	3505 D 4	3516 F 4	3527 I 2	3538 B 6	3569 N 9	3581 K10
3461 D17	3472 I19	3483 G26	3494 I23	3506 D 4	3517 G 4	3528 I 2	3539 B 7	3570 N 9	3582 K10
3462 E18	3473 I12	3484 D22	3496 J23	3507 D 3	3518 G 2	3529 J 2	3540 B 7	3571 M11	3583 K11

3585 K13	3605 H26	3616 N20	3627 D26	3638 O 2	3649 F 5	4401 F 7	5402 C 8	6406 F11	6424 F20
3586 K13	3606 I26	3617 M20	3628 C26	3639 O 2	3650 C26	4402 G 7	5403 K 4	6407 F11	6425 N12
3587 K14	3607 H25	3618 N20	3629 J 7	3640 N26	3651 B26	4404 A25	5404 D 8	6408 N16	6426 O14
3589 K14	3608 H25	3619 M19	3630 K 7	3641 N27	3652 B25	4405 B25	5405 F18	6409 N16	6427 K12
3590 K14	3609 I25	3620 N19	3631 I 8	3642 O26	3653 L 8	4406 K 7	5406 F18	6410 N17	6428 K11
3591 K15	3610 M27	3621 M18	3632 J 8	3643 I27	3654 L 8	4407 I27	5407 F18	6411 N17	6429 K13
3600 B10	3611 M26	3622 N18	3633 J 7	3644 I27	3655 H18	4408 J26	5408 F18	6412 K 3	6430 K15
3601 C25	3612 N27	3623 M18	3634 J 7	3645 J26	3656 I17	4409 J26	6400 G 4	6420 B10	6431 N18
3602 E27	3613 M21	3624 N18	3635 N 2	3646 J27	3700 N 6	4410 L 3	6401 J 3	6421 D20	6432 N19
3603 E26	3614 N21	3625 L 2	3636 O 2	3647 J26	3701 N 7	5400 I15	6402 K 3	6422 E20	6433 N21
3604 H26	3615 M20	3626 M 2	3637 O 2	3648 J27	4400 J 7	5401 I14	6405 F10	6423 E20	6434 D23

6435 E23	6447 E26	7403 C10	7425 J15	7437 C 6
6436 E23	6448 E26	7413 B11	7427 M18	7438 M10
6437 F23	6449 K 3	7414 B12	7428 O18	7439 M13
6438 F23	6450 K20	7415 N11	7429 M20	7440 M15
6439 G23	6451 K20	7416 H18	7430 O20	7441 H12
6440 G23	6452 K21	7417 G27	7431 M21	7445 G25
6441 H23	6453 G20	7418 F20	7432 O21	7446 K 8
6442 H22	6454 G20	7419 J12	7433 H24	7447 K 8
6443 I22	7400 G 2	7421 J11	7434 H26	9650 B13
6444 I22	7401 G 3	7422 N 3	7435 I11	9651 B13
6446 J22	7402 L11	7423 J14	7436 F 8	


5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
A B C D E F G H I J K L M N O
RDS DECODER
NON-RDS VERSION
7437 SAA6579T
RDS PROCESSOR
RDS VERSION /22 ONLY
TU_RDS
TU_CE
TU_DATA
TU_CLK
TU_STEREO
I2C_CLK
I2C_DATA
ST24CBXX1
DSC Backlight
7403 BC818-40
7413 BC847C
7414 BC847C
1400 13-BT-150GK
SHUFFLE HSD TIMER DBB
3STEREO PROLOGIC NORMAL PHANTOM PROG
RECORD TIMER SET CD ▷ TAPE
FRONT BACK FM MW SW LW REC STEREO NR AM PM FADER
RDS VOCAL
PLAY MODE SET CLOCK PROGRAM
DUBBING BAND SHUFFLE TIMER
SIDE RDS MODE CLEAR
PRESET TUNING
7441 TMP87CN71AF
CPU
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48kX8 BIT
PROGRAM COUNTER
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
I/O PORT 0
I/O PORT 1
I/O PORT 3
I/O PORT 4
I/O PORT 5
I/O PORT 6
I/O PORT 7
I/O PORT 8
I/O PORT 9
Open Source w.80k pull down to VKK
IR EYE
GP1U28XP
LINE_OUT PCB
BREAKAWAY
1411 AUX_L AUX_R
1410
30 LINE_L LINE_R
7447 BC817-40
7446 BC817-40
Dolby Pro_Logic
Set Power
HVC
CD Optical Out
DOLBY DPL AUX TAPE TIMER DEMO R2 R1 L2 L1 TUNER CD OPTIMAL STDBY C4 C3 POP JAZZ INC SOUND DBB C2 C1 CLASSIC ROCK
FADER
7418 BC858C
CD TUNER TAPE AUX
RED GREEN
7421 BC858C
7419 BC858C
7423 BC858C
7425 BC858C
7402 BC847C
7438 74HCT4094
7439 74HCT4094
7440 74HCT4094
7415 BC847C
INC. SOUND
DBB
1470 EVQWEZF20
ROTARY ENCODER
VOL_B
VOL_A
FLASHING LEDS
CDC/CD KEY
7427 BC858C
7429 BC858C
7431 BC858C
7428 BC847C
7430 BC847C
7432 BC847C
DISC3 DISC1 DISC2 Open/Close
CDC Backlight
TO CONNECTOR 1403
1405 KEY1 KEY0 P05' P06' +F CDC1LIT CDC2LIT CDC3LIT LED-1 LED-2
TO CD/CDC
1403 KEY1 KEY0 P05' P06' +F CDC1LIT CDC2LIT CDC3LIT LED-1 LED-2
To Connector 1405
7445 BC847C
7417 BC847C
EOT SIGNAL CONDITIONERS
7433 BC847C
7434 BC847C
1404 GND +G AD1 EOTB SOLB/MOTB AD2 EOTA SOLA/MOTA AD3 NS/HS
TO ETF2
PROVISION
To LOGIC DECK
1417 1416 ENABLE DATA CLK GND Rec/ALC Cr/Fe Dolby

CDC3	VIDEM
NC	NC
OE_LATCH	NC
SICL	NC
GND	GND
SILD	TRQ
DATA	SCK
PORE	RESET
SH_CLK	USRS1
STR_OUTP	USRS0
SW_INFO	GND

CHINA Ⓒ	ALL OTHER VERSIONS Ⓐ
AUX-IN-1	AUX-IN
AUX-IN-2	LINE-OUT

	/22	non/22
3401	47k	680k

■ For CDC3 version.
▲ For CDSL version.

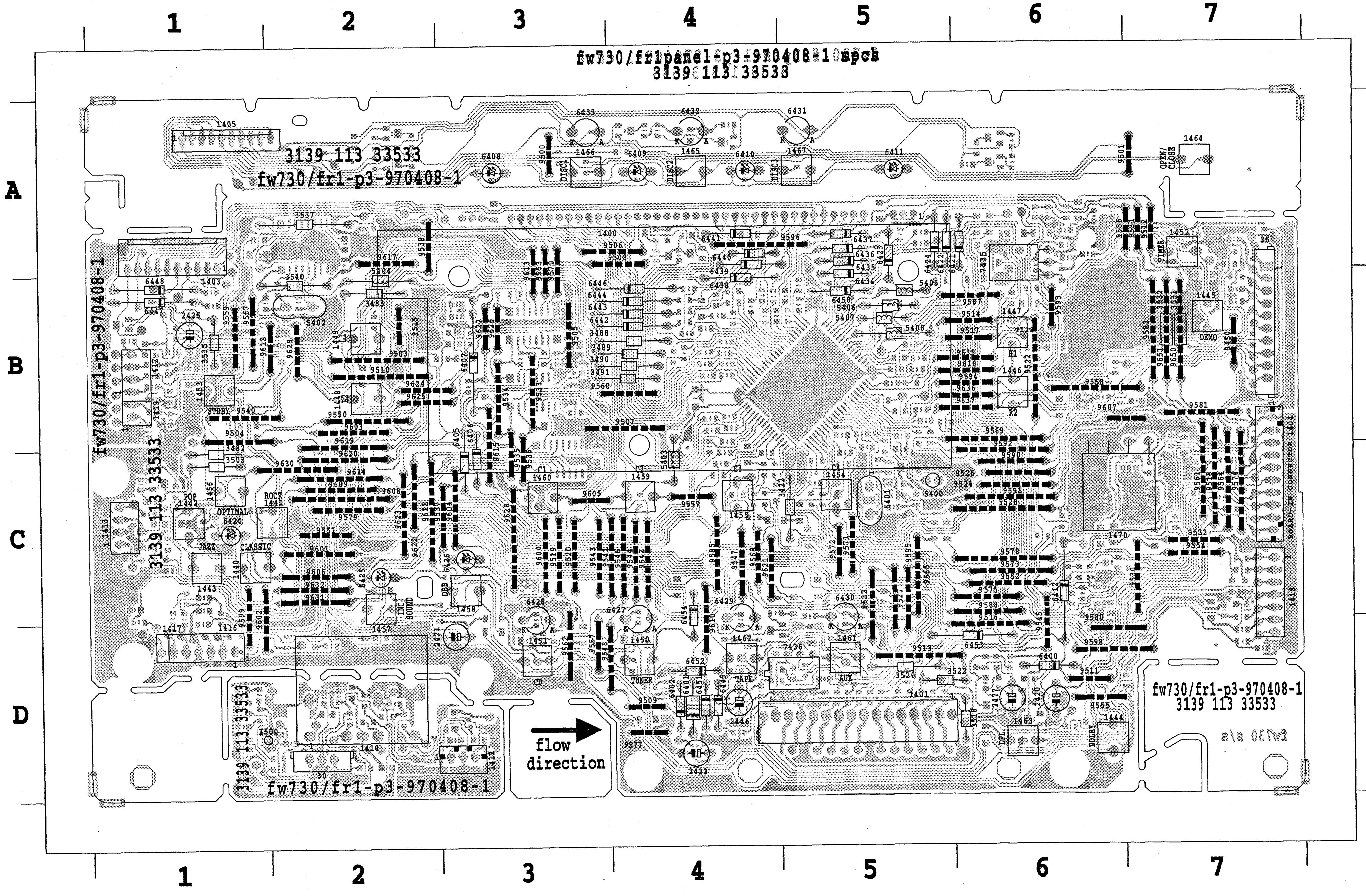
⊠ For provision only

R.E : FOR NON HVC VERSIONS

PCS 96 788

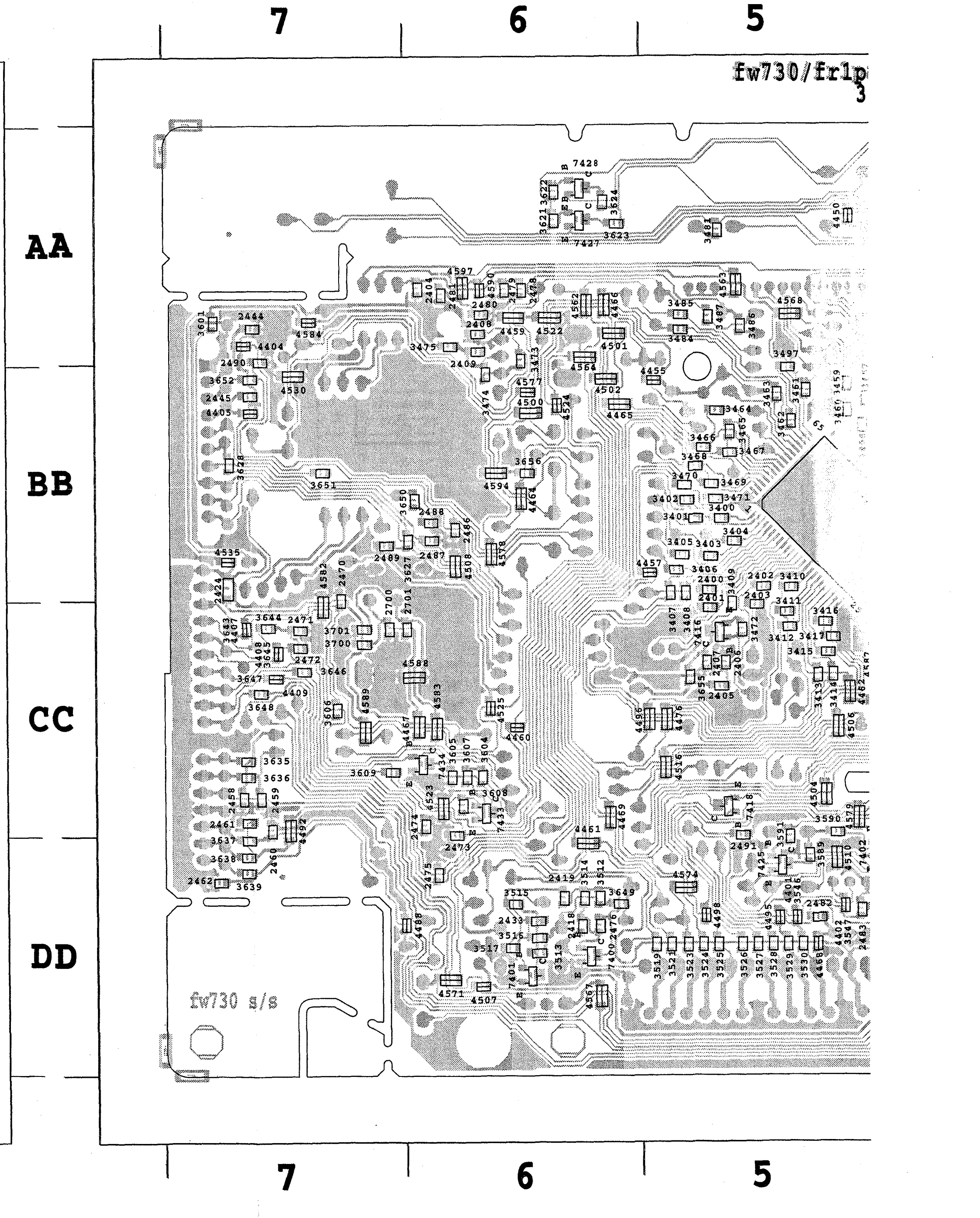
FRONT COMPONENT LAYOUT *(NON-HVC VERSION)*

25 B 7	1418 C 7	1451 D 3	1464 A 7	3482 C 1	3537 A 2	6402 D 4	6424 A 5	6444 B 4	9500 A 3	9514 B 6	9532 C 7	9546 C 4	9561 C 7	9578 C 6	9594 B 6	9608 C 2	9621 C 4	9636 B 6
30 D 2	1419 B 1	1452 A 7	1465 A 4	3483 B 2	3540 B 2	6405 C 3	6425 C 2	6446 B 4	9501 A 7	9516 D 6	9533 B 3	9547 C 4	9562 D 3	9579 C 2	9595 C 5	9609 C 2	9622 C 2	9637 B 6
1400 A 4	1440 C 1	1453 B 1	1466 A 3	3488 B 4	5400 C 5	6406 C 3	6426 C 3	6447 B 1	9503 B 2	9517 B 6	9534 B 3	9548 D 4	9564 C 7	9580 D 6	9596 A 4	9610 D 4	9623 C 2	9650 B 7
1401 D 5	1441 C 2	1454 C 5	1467 A 5	3489 B 4	5401 C 5	6407 B 3	6434 B 5	6448 B 1	9504 B 1	9518 C 7	9535 C 3	9550 B 2	9565 C 5	9581 B 7	9597 C 4	9611 C 2	9624 B 2	9651 B 7
1403 A 1	1442 C 1	1455 C 4	1470 C 6	3490 B 4	5402 B 2	6408 A 3	6435 A 5	6449 D 4	9505 B 3	9519 C 3	9536 C 3	9551 C 2	9567 B 1	9582 B 7	9598 D 6	9612 C 5	9625 B 2	----
1404 C 7	1443 C 1	1456 C 1	1500 D 1	3491 B 4	5403 C 4	6409 A 4	6436 A 5	6450 B 5	9506 A 4	9520 C 3	9537 C 3	9552 C 6	9568 C 4	9585 C 4	9599 C 1	9613 A 3	9626 B 3	9515 B 2
1405 A 1	1444 D 6	1457 C 2	2420 D 6	3503 C 1	5404 B 2	6410 A 4	6437 A 5	6451 D 4	9507 B 4	9522 B 6	9538 A 2	9553 A 3	9569 B 6	9586 A 7	9600 C 3	9614 C 2	9627 B 3	9577 D 4
1410 D 2	1445 B 7	1458 C 3	2421 D 3	3518 D 6	5405 B 5	6411 A 5	6438 B 4	6452 D 4	9508 A 4	9524 C 6	9540 B 1	9554 C 7	9570 A 3	9587 B 6	9601 C 2	9615 B 3	9628 C 3	9607 B 6
1411 D 3	1446 B 6	1459 C 4	2423 D 4	3520 D 5	5406 B 5	6412 C 6	6439 A 4	6453 D 6	9509 D 4	9526 C 6	9541 C 4	9555 D 6	9571 C 5	9588 C 6	9602 C 1	9616 B 6	9629 B 2	
1412 B 1	1447 B 6	1460 C 3	2425 B 1	3522 D 5	5407 B 5	6420 C 1	6440 A 4	6454 C 4	9510 B 2	9527 C 5	9542 C 4	9557 D 3	9572 C 5	9590 C 6	9603 B 2	9617 A 2	9630 C 2	
1413 C 1	1448 B 2	1461 D 5	2446 D 4	3531 B 7	5408 B 5	6421 A 6	6441 A 4	7435 A 6	9511 D 6	9528 C 6	9543 C 3	9558 B 6	9573 C 6	9591 C 6	9604 C 3	9618 B 2	9631 C 2	
1416 D 1	1449 B 2	1462 D 4	2477 D 6	3532 B 7	6400 D 6	6422 A 5	6442 B 4	7436 D 5	9512 A 7	9530 C 7	9544 C 4	9559 B 1	9574 C 7	9592 C 6	9605 C 3	9619 B 2	9632 C 2	
1417 D 1	1450 D 4	1463 D 6	3422 C 5	3535 B 1	6401 D 4	6423 A 5	6443 B 4	9450 B 7	9513 D 5	9531 A 7	9545 D 6	9560 B 4	9575 C 6	9593 B 6	9606 C 2	9620 C 2	9635 B 6	



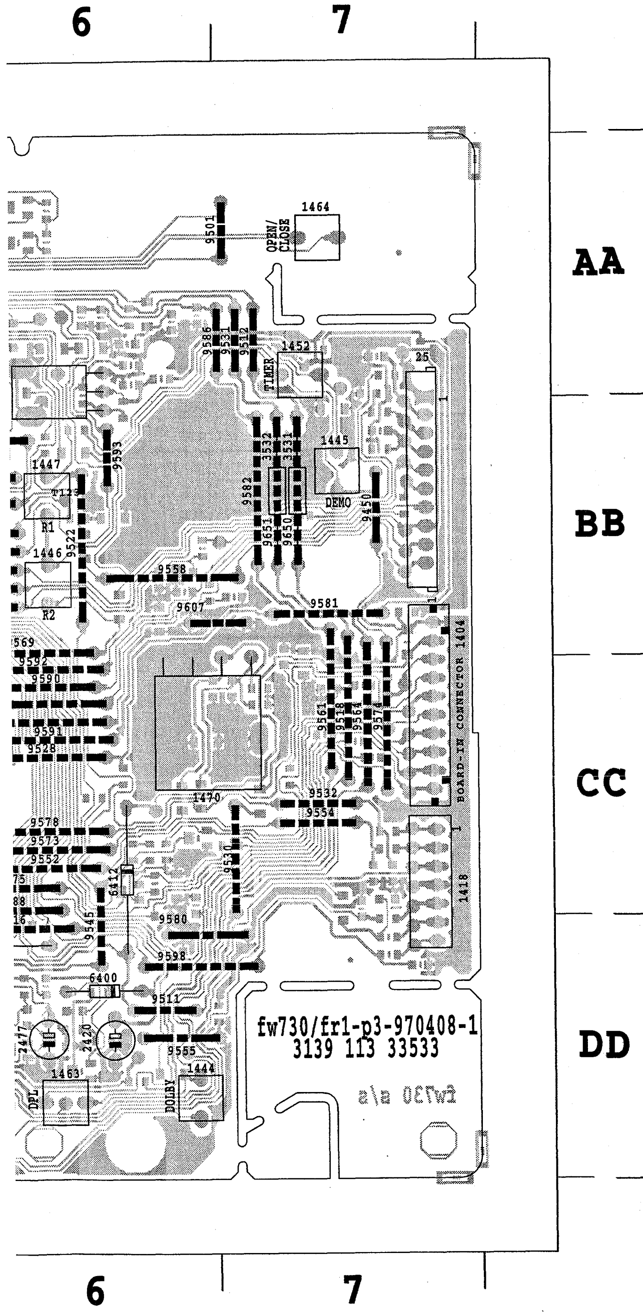
FRONT CHIP LAYOUT *(NON-HVC VERSION)*

2400 B 5	2429 A 1	2459 C 7	2486 B 6	3412 C 5	3437 B 4	3461 B 5	3487 A 5	3517
2401 C 5	2430 B 2	2460 C 7	2487 B 6	3413 C 5	3438 B 4	3462 B 5	3492 B 4	3519
2402 B 5	2431 A 2	2461 C 7	2488 B 6	3414 C 5	3439 B 4	3463 B 5	3493 B 4	3521
2403 C 5	2432 D 4	2462 D 7	2489 B 7	3415 C 5	3440 B 4	3464 B 5	3494 B 4	3523
2404 A 6	2433 D 6	2463 C 1	2490 A 7	3416 C 5	3441 B 4	3465 B 5	3496 B 4	3524
2405 C 5	2439 D 3	2464 D 2	2491 D 5	3417 C 5	3442 B 4	3466 B 5	3497 B 5	3525
2406 C 5	2440 D 3	2465 C 1	2492 C 1	3418 C 4	3443 B 4	3467 B 5	3498 D 4	3526
2407 C 5	2441 B 3	2466 C 1	2493 C 1	3419 C 4	3444 B 4	3468 B 5	3499 D 4	3527
2408 A 6	2442 B 3	2467 C 1	2495 D 1	3420 C 4	3445 B 4	3469 B 5	3500 C 1	3528
2409 A 6	2443 B 3	2468 C 1	2496 D 1	3421 C 4	3446 B 4	3470 B 5	3501 C 1	3529
2410 A 4	2444 A 7	2469 C 1	2700 C 7	3423 C 4	3447 B 4	3471 B 5	3502 C 1	3530
2411 A 4	2445 B 7	2470 C 7	2701 C 6	3424 C 4	3448 B 4	3472 C 5	3504 B 1	3533
2412 B 1	2447 D 2	2471 C 7	3400 B 5	3425 C 4	3449 B 4	3473 A 6	3505 B 1	3534
2413 B 1	2448 B 4	2472 C 7	3401 B 5	3426 C 4	3450 B 4	3474 B 6	3506 B 1	3536
2414 B 1	2449 D 2	2473 C 6	3402 B 5	3427 C 4	3451 B 4	3475 A 6	3507 B 1	3538
2415 B 1	2450 D 2	2474 C 6	3403 B 5	3428 C 4	3452 B 4	3476 A 4	3508 B 1	3539
2416 B 1	2451 C 1	2475 D 6	3404 B 5	3429 B 4	3453 B 4	3477 A 4	3509 B 1	3541
2417 B 1	2452 C 1	2476 D 6	3405 B 5	3430 B 3	3454 B 4	3478 A 3	3510 B 1	3542
2418 D 6	2453 D 2	2478 A 6	3406 B 5	3431 B 3	3455 B 4	3479 A 4	3511 B 1	3543
2419 D 6	2454 D 2	2479 A 6	3407 B 5	3432 B 3	3456 B 4	3480 A 4	3512 D 6	3544
2422 A 1	2455 D 2	2480 A 6	3408 B 5	3433 B 4	3457 B 5	3481 A 5	3513 D 6	3545
2424 B 7	2456 D 2	2481 A 6	3409 C 5	3434 B 4	3458 B 5	3484 A 5	3514 D 6	3546
2427 B 2	2457 D 2	2482 D 5	3410 B 5	3435 B 4	3459 B 5	3485 A 5	3515 D 6	3547
2428 B 2	2458 C 7	2483 D 5	3411 C 5	3436 B 4	3460 B 5	3486 A 5	3516 D 6	3568

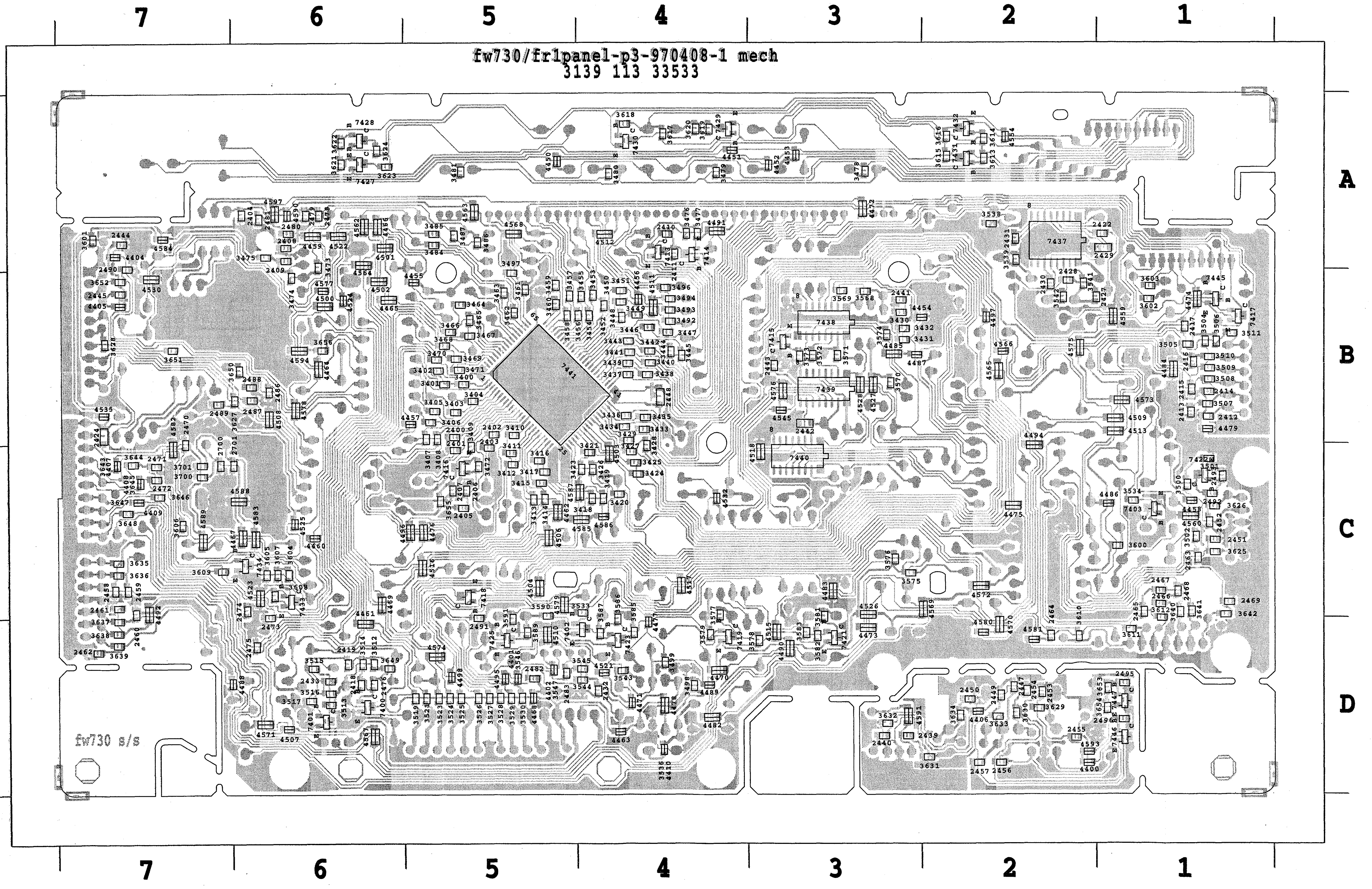


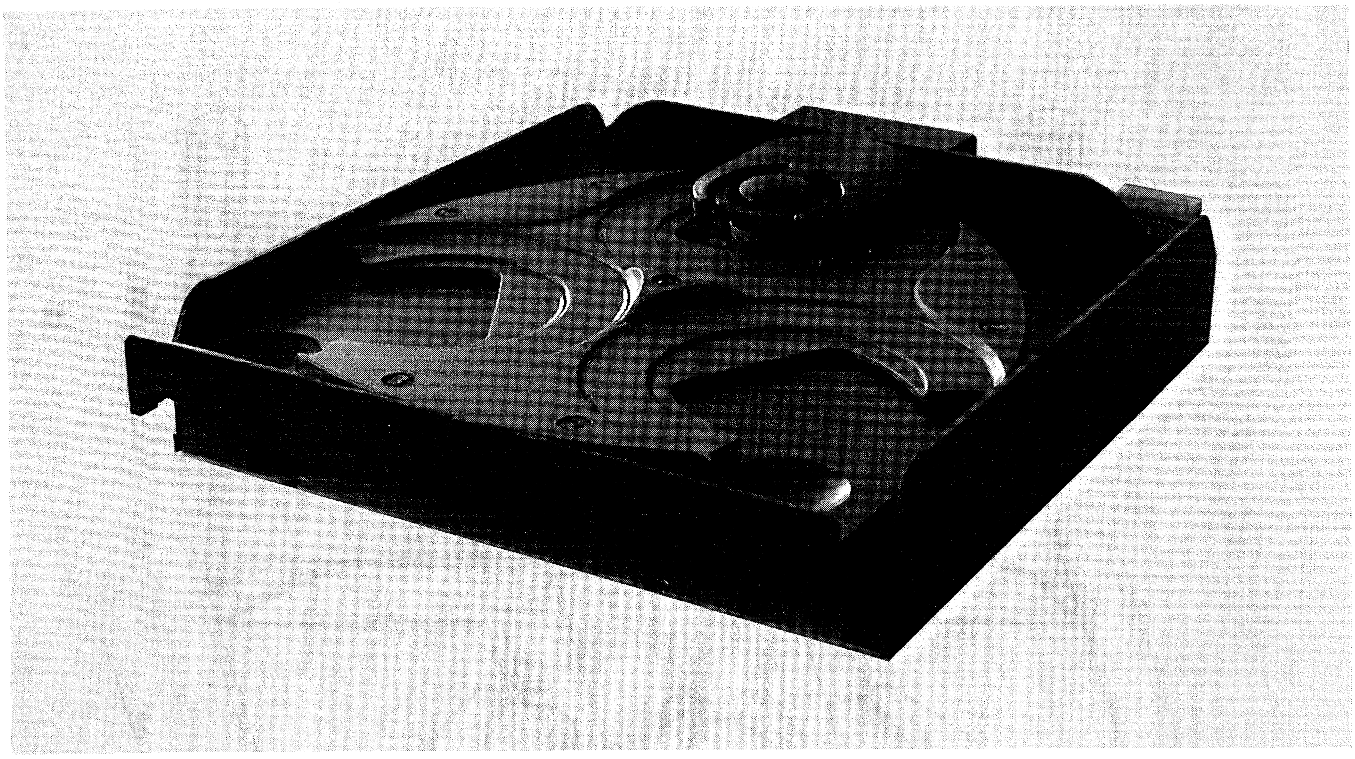
FRONT CHIP LAYOUT *(NON-HVC VERSION)*

9578 C 6	9594 B 6	9608 C 2	9621 C 4	9636 B 6
9579 C 2	9595 C 5	9609 C 2	9622 C 2	9637 B 6
9580 D 6	9596 A 4	9610 D 4	9623 C 2	9650 B 7
9581 B 7	9597 C 4	9611 C 2	9624 B 2	9651 B 7
9582 B 7	9598 D 6	9612 C 5	9625 B 2	----
9585 C 4	9599 C 1	9613 A 3	9626 B 3	9515 B 2
9586 A 7	9600 C 3	9614 C 2	9627 B 3	9577 D 4
9587 B 6	9601 C 2	9615 B 3	9628 C 3	9607 B 6
9588 C 6	9602 C 1	9616 B 6	9629 B 2	
9590 C 6	9603 B 2	9617 A 2	9630 C 2	
9591 C 6	9604 C 3	9618 B 2	9631 C 2	
9592 C 6	9605 C 3	9619 B 2	9632 C 2	
9593 B 6	9606 C 2	9620 C 2	9635 B 6	



2400 B 5	2429 A 1	2459 C 7	2486 B 6	3412 C 5	3437 B 4	3461 B 5	3487 A 5	3517 D 6	3569 B 3	3604 C 6	3628 B 7	3652 B 7	4457 B 5	4483 C 3	4510 D 5	4563 A 5	4587 C 4	7428 A 6
2401 C 5	2430 B 2	2460 C 7	2487 B 6	3413 C 5	3438 B 4	3462 B 5	3492 B 4	3519 D 5	3570 B 3	3605 C 6	3629 D 2	3653 D 1	4458 C 1	4484 B 1	4511 B 4	4564 A 6	4588 C 6	7429 A 4
2402 B 5	2431 A 2	2461 C 7	2488 B 6	3414 C 5	3439 B 4	3463 B 5	3493 B 4	3521 D 5	3571 B 3	3606 C 7	3630 D 2	3654 D 1	4459 A 6	4485 B 3	4512 A 4	4565 B 2	4589 C 7	7430 A 4
2403 C 5	2432 D 4	2462 D 7	2489 B 7	3415 C 5	3440 B 4	3464 B 5	3494 B 4	3523 D 5	3572 B 3	3607 C 6	3631 D 2	3655 C 5	4460 C 6	4486 C 1	4513 B 1	4566 B 2	4590 A 6	7431 A 2
2404 A 6	2433 D 6	2463 C 1	2490 A 7	3416 C 5	3441 B 4	3465 B 5	3496 B 4	3524 D 5	3573 B 3	3608 C 6	3632 D 3	3656 B 6	4461 D 6	4487 B 3	4515 D 3	4567 D 6	4591 D 3	7432 A 2
2405 C 5	2439 D 3	2464 D 2	2491 D 5	3417 C 5	3442 B 4	3466 B 5	3497 B 5	3525 D 5	3574 B 3	3609 C 7	3633 D 2	3700 C 7	4462 C 5	4488 D 7	4516 C 5	4568 A 5	4593 D 2	7433 C 6
2406 C 5	2440 D 3	2465 C 1	2492 C 1	3418 C 4	3443 B 4	3467 B 5	3498 D 4	3526 D 5	3575 C 3	3610 D 2	3634 D 2	3701 C 7	4463 D 4	4489 D 4	4517 C 4	4569 C 2	4594 B 6	7434 C 6
2407 C 5	2441 B 3	2466 C 1	2493 C 1	3419 C 4	3444 B 4	3468 B 5	3499 D 4	3527 D 5	3576 C 3	3611 D 1	3635 C 7	4400 D 2	4464 B 6	4490 D 3	4518 C 3	4570 D 2	4597 A 6	7437 A 2
2408 A 6	2442 B 3	2467 C 1	2495 D 1	3420 C 4	3445 B 4	3469 B 5	3500 C 1	3528 D 5	3577 C 4	3612 D 1	3636 C 7	4401 D 5	4465 B 6	4491 A 4	4521 D 4	4571 D 6	7400 D 6	7438 B 3
2409 A 6	2443 B 3	2468 C 1	2496 D 1	3421 C 4	3446 B 4	3470 B 5	3501 C 1	3529 D 5	3578 D 3	3613 A 2	3637 D 7	4402 D 5	4466 A 6	4492 C 7	4522 A 6	4572 C 2	7401 D 6	7439 B 3
2410 A 4	2444 A 7	2469 C 1	2700 C 7	3423 C 4	3447 B 4	3471 B 5	3502 C 1	3530 D 5	3579 D 4	3614 A 2	3638 D 7	4404 A 7	4467 C 6	4494 C 2	4523 C 6	4573 B 1	7402 D 4	7440 C 3
2411 A 4	2445 B 7	2470 C 7	2701 C 6	3424 C 4	3448 B 4	3472 C 5	3504 B 1	3533 C 4	3581 C 3	3615 A 2	3639 D 7	4405 B 7	4468 D 5	4495 D 5	4524 B 6	4574 D 5	7403 C 1	7441 B 5
2412 B 1	2447 D 2	2471 C 7	3400 B 5	3425 C 4	3449 B 4	3473 A 6	3505 B 1	3534 C 1	3582 D 3	3616 A 2	3640 C 1	4406 D 2	4469 C 6	4496 C 5	4525 C 6	4575 B 2	7413 A 4	7445 B 1
2413 B 1	2448 B 4	2472 C 7	3401 B 5	3426 C 4	3450 B 4	3474 B 6	3506 B 1	3536 D 4	3583 D 3	3617 A 4	3641 C 1	4407 C 7	4470 D 4	4497 B 2	4526 C 3	4576 B 3	7414 A 4	7446 D 1
2414 B 1	2449 D 2	2473 C 6	3402 B 5	3427 C 4	3451 B 4	3475 A 6	3507 B 1	3538 A 2	3585 D 4	3618 A 4	3642 C 1	4408 C 7	4471 D 4	4498 D 5	4527 B 3	4577 B 6	7415 B 3	7447 D 1
2415 B 1	2450 D 2	2474 C 6	3403 B 5	3428 C 4	3452 B 4	3476 A 4	3508 B 1	3539 A 2	3586 D 4	3619 A 4	3643 C 7	4409 C 7	4472 A 3	4500 B 6	4528 B 3	4578 B 6	7416 C 5	----
2416 B 1	2451 C 1	2475 D 6	3404 B 5	3429 B 4	3453 B 4	3477 A 4	3509 B 1	3541 B 2	3587 D 4	3620 A 4	3644 C 7	4410 D 4	4473 D 3	4501 A 6	4530 B 7	4579 C 5	7417 B 1	
2417 B 1	2452 C 1	2476 D 6	3405 B 5	3430 B 3	3454 B 4	3478 A 3	3510 B 1	3542 B 2	3589 D 5	3621 A 6	3645 C 7	4450 A 5	4474 B 1	4502 B 6	4532 C 4	4580 D 2	7418 C 5	
2418 D 6	2453 D 2	2478 A 6	3406 B 5	3431 B 3	3455 B 4	3479 A 4	3511 B 1	3543 D 4	3590 C 5	3622 A 6	3646 C 7	4451 A 4	4475 C 2	4503 C 4	4535 B 7	4581 D 2	7419 D 4	
2419 D 6	2454 D 2	2479 A 6	3407 B 5	3432 B 3	3456 B 4	3480 A 4	3512 D 6	3544 D 4	3591 D 5	3623 A 6	3647 C 7	4452 A 3	4476 C 5	4504 C 5	4545 B 3	4582 C 7	7421 D 3	
2422 A 1	2455 D 2	2480 A 6	3408 B 5	3433 B 4	3457 B 5	3481 A 5	3513 D 6	3545 D 4	3600 C 1	3624 A 6	3648 C 7	4453 A 3	4477 D 4	4506 C 5	4554 A 2	4583 C 6	7422 C 1	
2424 B 7	2456 D 2	2481 A 6	3409 C 5	3434 B 4	3458 B 5	3484 A 5	3514 D 6	3546 D 5	3601 A 7	3625 C 1	3649 D 6	4454 B 3	4478 D 4	4507 D 6	4559 B 1	4584 A 7	7423 D 4	
2427 B 2	2457 D 2	2482 D 5	3410 B 5	3435 B 4	3459 B 5	3485 A 5	3515 D 6	3547 D 5	3602 B 1	3626 C 1	3650 B 6	4455 B 5	4479 B 1	4508 B 6	4560 C 1	4585 C 4	7425 D 5	
2428 B 2	2458 C 7	2483 D 5	3411 C 5	3436 B 4	3460 B 5	3486 A 5	3516 D 6	3568 B 3	3603 B 1	3627 B 6	3651 B 7	4456 B 4	4482 D 4	4509 B 1	4562 A 6	4586 C 4	7427 A 6	





3CDC Module

(3 Disc Carrousel Changer)

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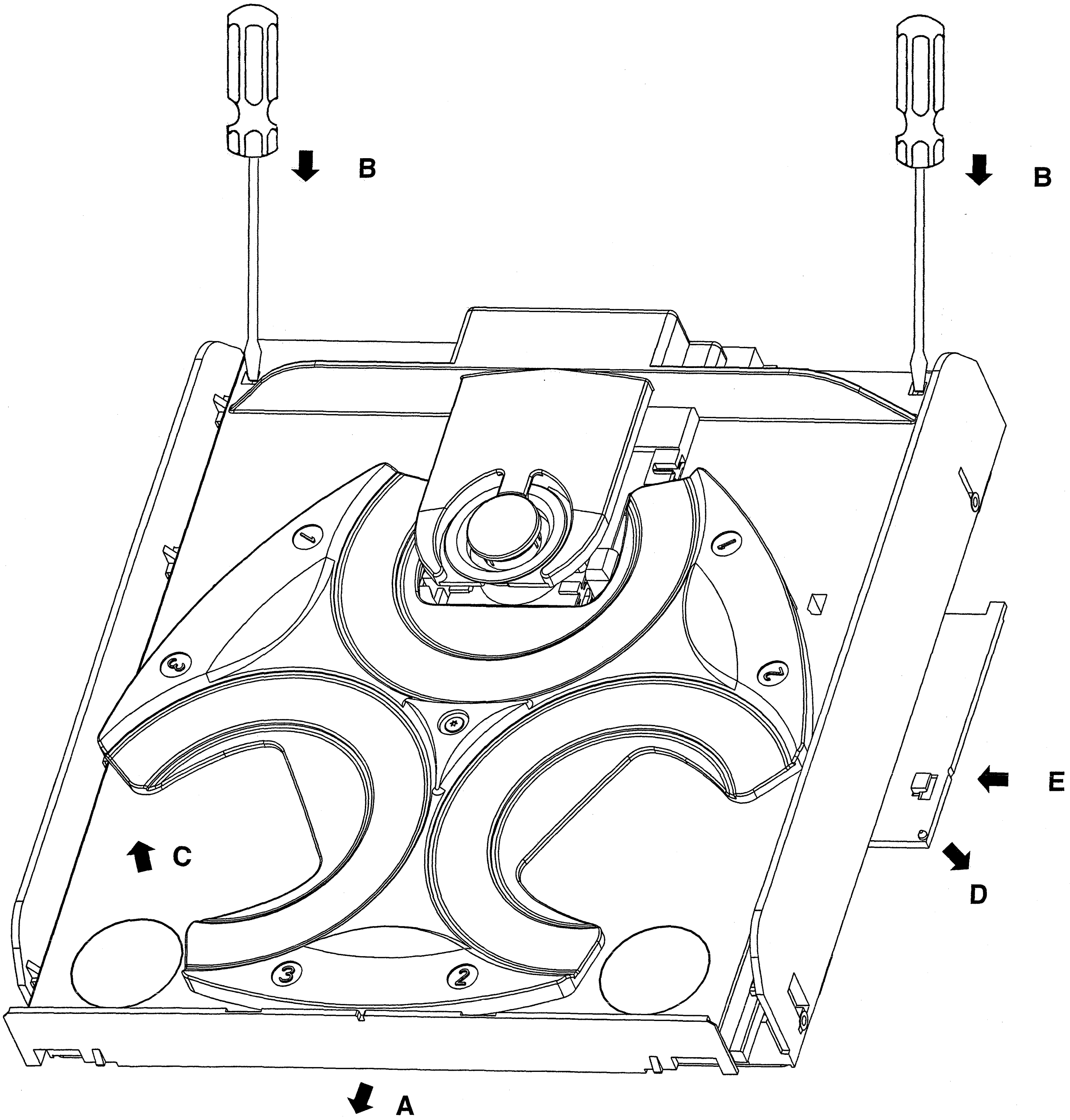
Demounting Hints



Demounting of Drawer

→ **A** Pull drawer outwards
→ **B** Unlock drawer with screwdriver
→ **C** Lift drawer to demount from chassis

Demounting of Flex Plate

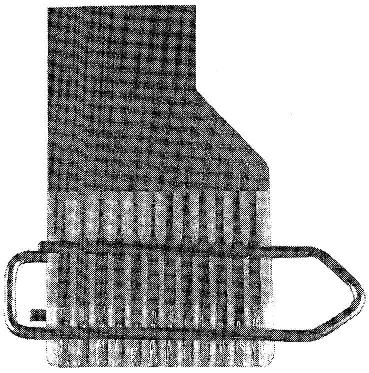
→ **D** Lift plate to unlock pin from bottom plate
→ **E** Move plate inwards to demount from bottom plate

Servicing Hints

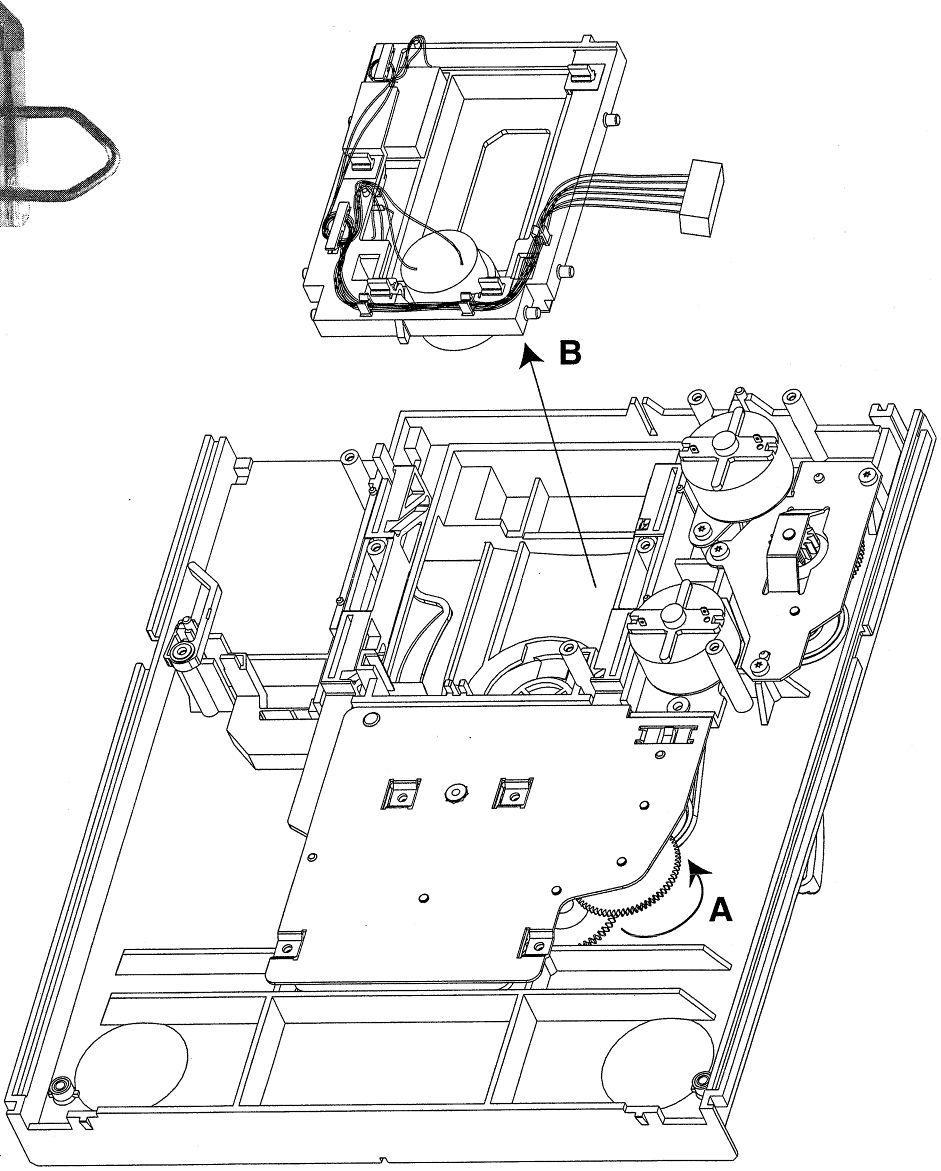
Replacement of CD Drive

See also exploded view of changer mechanism.

1. Demount flex plate (pos 140).
2. Demount printed circuit board: remove 6 screws and desolder lips of tray motor and carrousel motor.
3. Disconnect flexfoil and JST connector of CD drive from Printed circuit board. Shortcircuit the flexfoil with a paperclip to protect the laser against ESD.
4. Remove 2 screws (pos 107,108) and demount CD drive lockings (pos 105,106).
5. Turn gearwheel (pos 42) of disc change mechanism by finger to move CD drive support in upper position as shown in picture below Ⓐ.
6. Demount CD drive support (pos 95) Ⓑ.
7. Replace CD drive (pos 100). The wire tree of JST connector has to be desoldered and resoldered on the new CD drive again.



CD drive flex foil

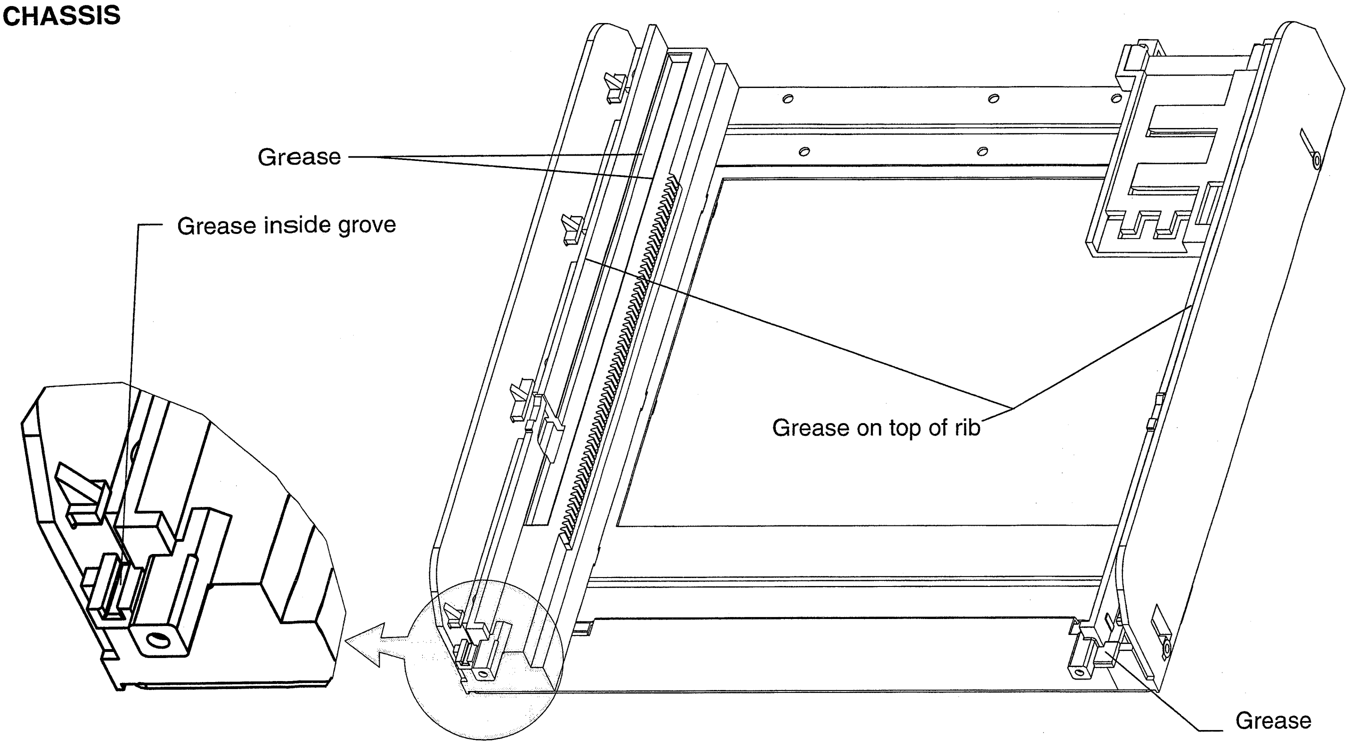


Mounting of Carrousel

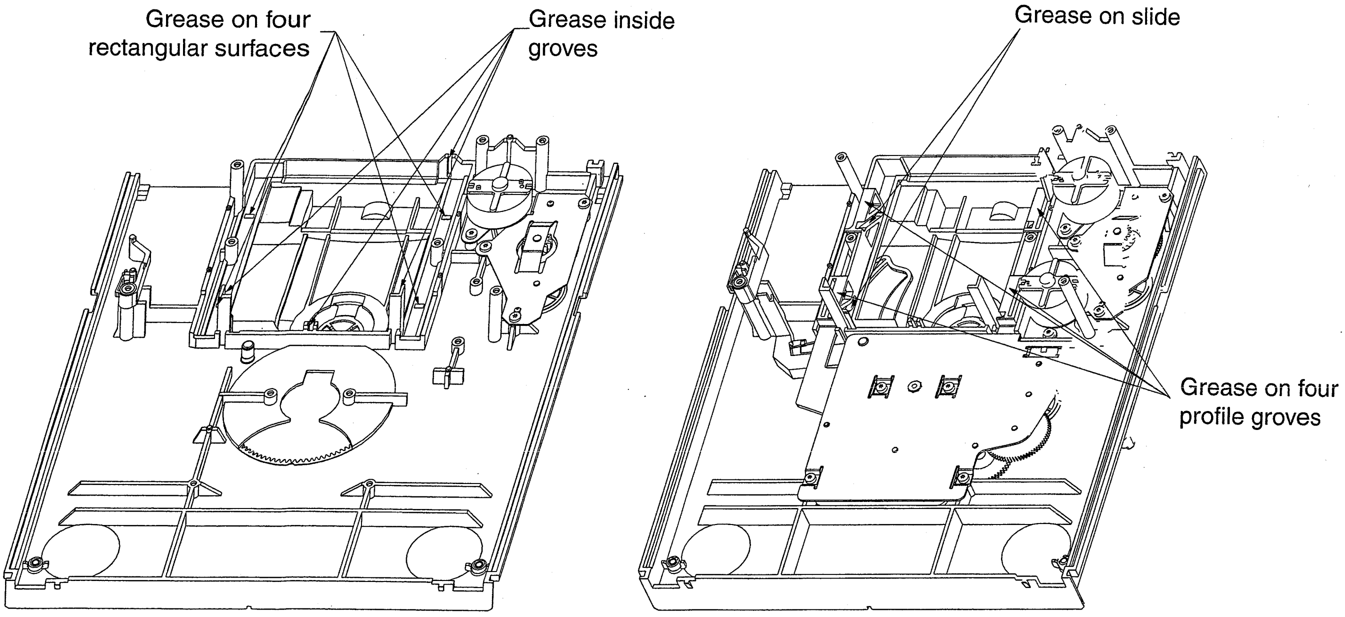
1. Turn gearwheel (pos 42) of disc change mechanism by finger until CD drive is in play position.
2. Mount carrousel (pos 115) so that disc is positioned right on turntable. Carrousel position number doesn´t matter.

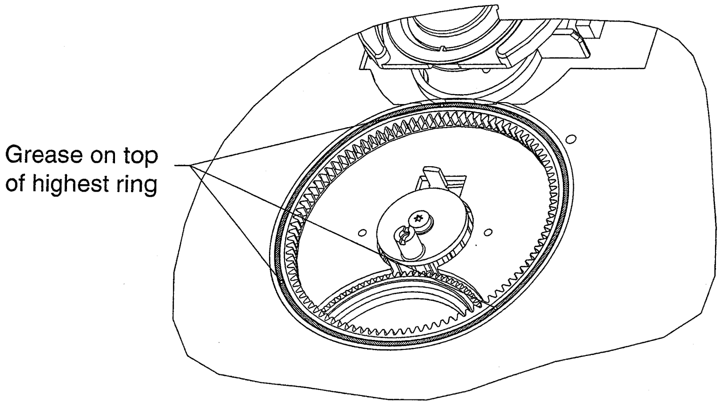
Lubrication Instructions

CHASSIS

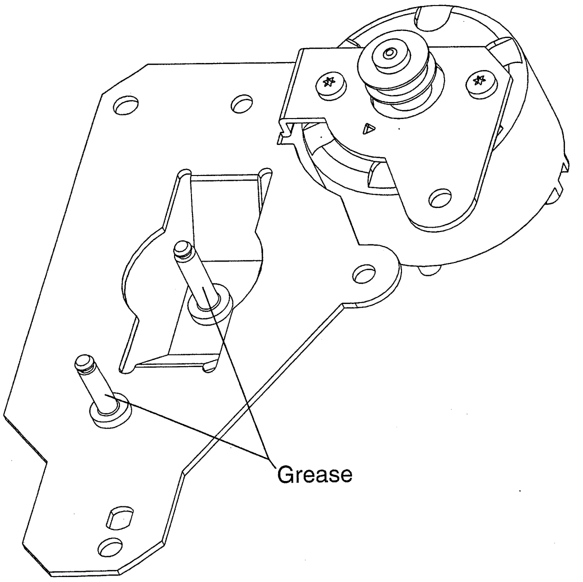

Grease
Grease inside grove
Grease on top of rib
Grease

DRAWER

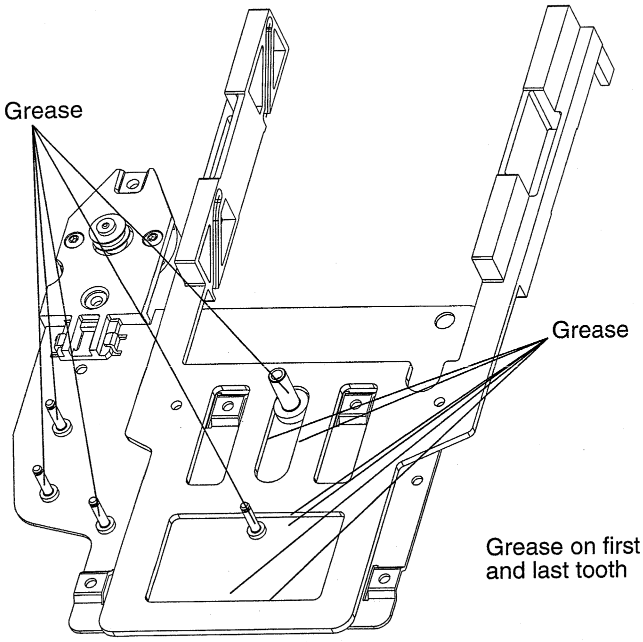

Grease on four rectangular surfaces
Grease inside groves
Grease on slide
Grease on four profile groves

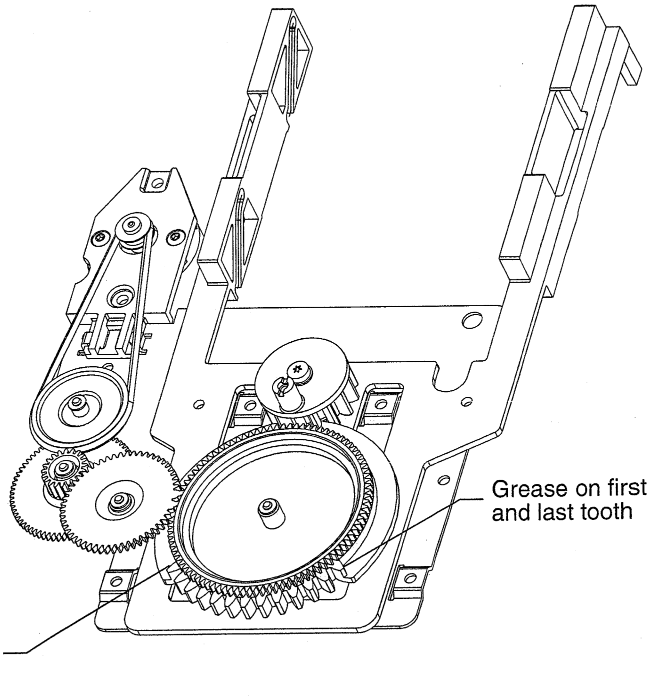

Grease on top of highest ring

DRAWER MECHANISM



DISC CHANGE MECHANISM


Grease
Grease


Grease on first and last tooth
Grease on first and last tooth

Use only grease **Polylub GLY 801** service codenumber 4822 390 10136

WARNING

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE
- ***SWITCH OFF POWER SUPPLY***
- ***ESD PROTECTION***

ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CDM mechanism:
1. Disconnect old CD drive flexfoil from printed board
2. Connect paperclip to CD drive flexfoil to short-circuit flexfoil (fig.1)
3. Short-circuit printed board with **brass-sheet (4822 321 11197)** plugged into the flexfoil connector (fig.2)
4. Remove old CD drive mechanism
5. Position new CD mechanism in its studs
6. Remove short-circuit from printed board connector
7. Remove short-circuit from flexfoil of new CD drive
8. Connect new flexfoil to print connector (fig.3)

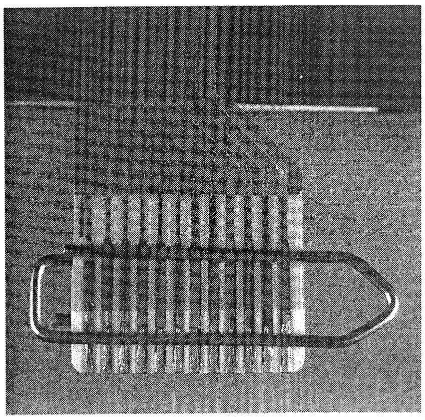


fig.1

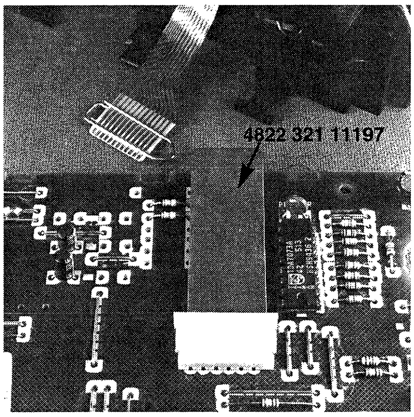


fig.2

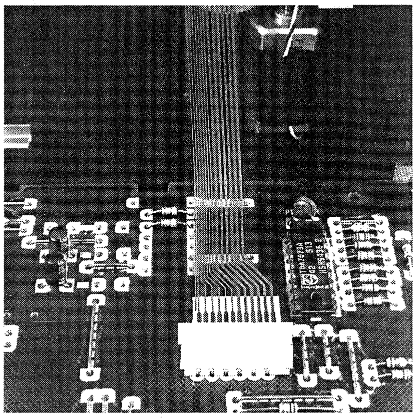
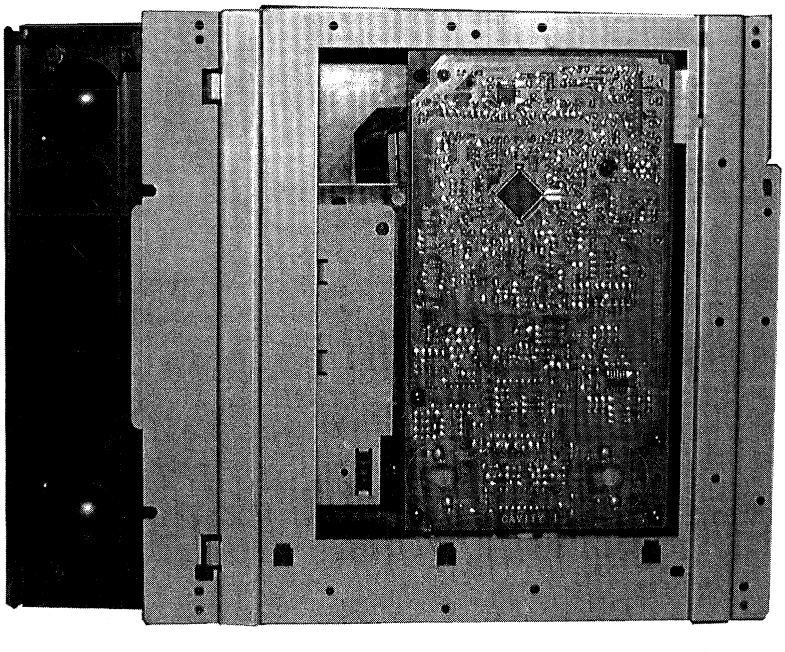
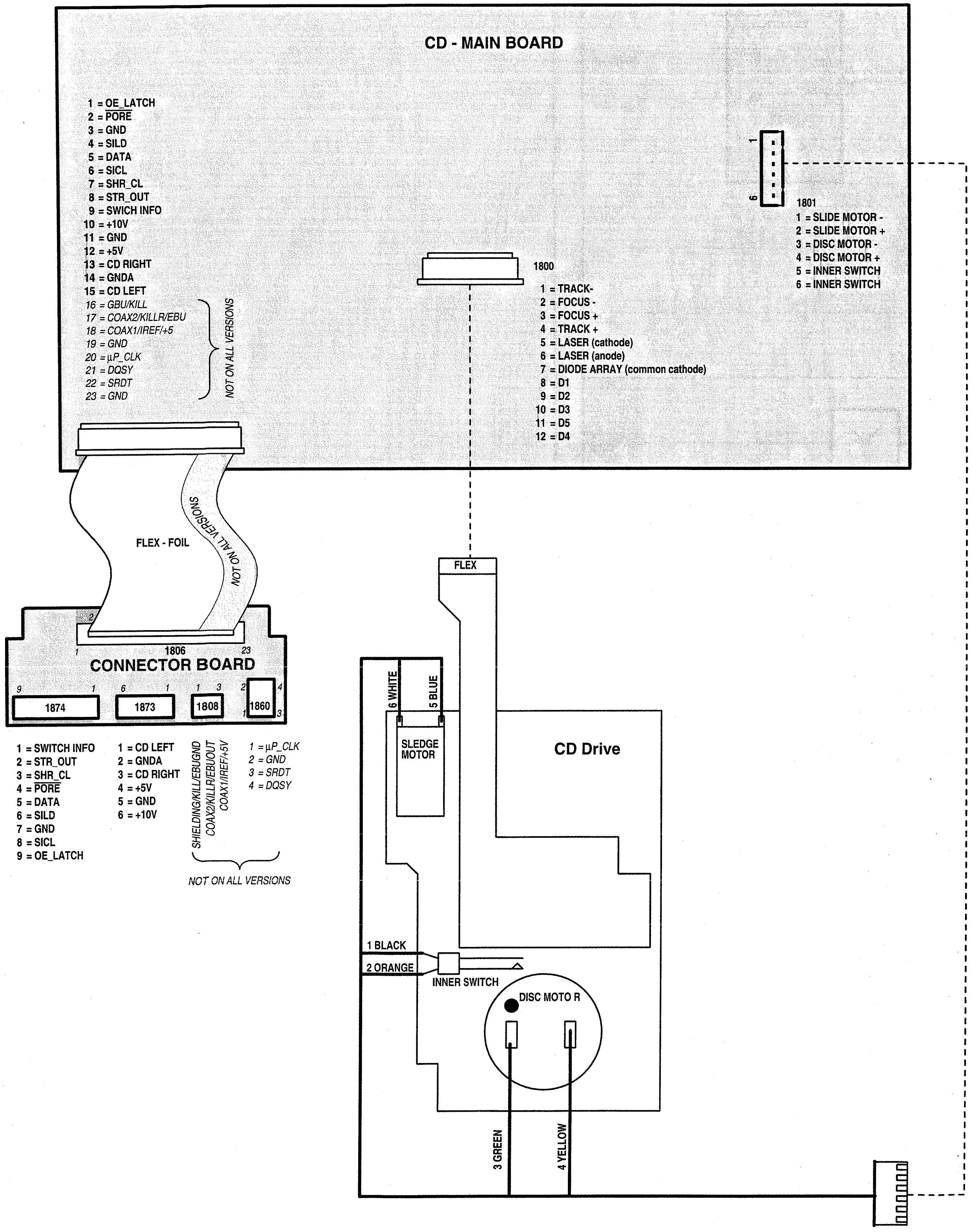


fig.3

Service Position

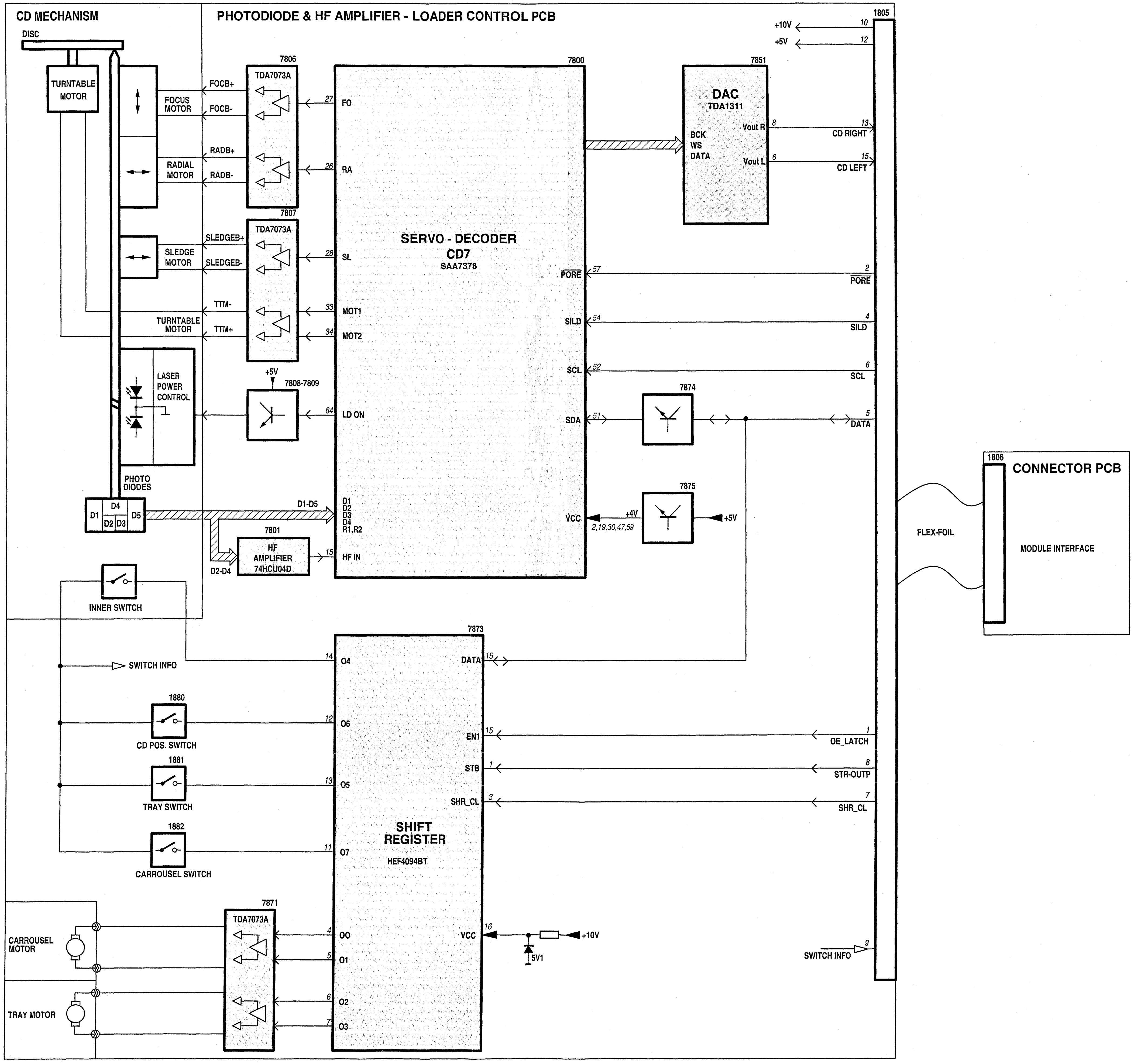


Wiring diagram


CD - MAIN BOARD
1 = OE_LATCH
2 = PORE
3 = GND
4 = SILD
5 = DATA
6 = SICL
7 = SHR_CL
8 = STR_OUT
9 = SWICH INFO
10 = +10V
11 = GND
12 = +5V
13 = CD RIGHT
14 = GNDA
15 = CD LEFT
16 = GBU/KILL
17 = COAX2/KILLR/EBU
18 = COAX1/IREF/+5
19 = GND
20 = µP_CLK
21 = DQSY
22 = SRDT
23 = GND
NOT ON ALL VERSIONS
1800
1 = TRACK-
2 = FOCUS -
3 = FOCUS +
4 = TRACK +
5 = LASER (cathode)
6 = LASER (anode)
7 = DIODE ARRAY (common cathode)
8 = D1
9 = D2
10 = D3
11 = D5
12 = D4
1
6
1801
1 = SLIDE MOTOR -
2 = SLIDE MOTOR +
3 = DISC MOTOR -
4 = DISC MOTOR +
5 = INNER SWITCH
6 = INNER SWITCH
FLEX - FOIL
NOT ON ALL VERSIONS
2
1
1806
23
CONNECTOR BOARD
9
1
1874
6
1
1873
1
3
1808
2
4
1860
1
3
1 = SWITCH INFO
2 = STR_OUT
3 = SHR_CL
4 = PORE
5 = DATA
6 = SILD
7 = GND
8 = SICL
9 = OE_LATCH
1 = CD LEFT
2 = GNDA
3 = CD RIGHT
4 = +5V
5 = GND
6 = +10V
SHIELDING/KILL/EBUGND
COAX2/KILLR/EBUOUT
COAX1/IREF/+5V
1 = µP_CLK
2 = GND
3 = SRDT
4 = DQSY
NOT ON ALL VERSIONS
FLEX
6 WHITE
5 BLUE
SLEDGE MOTOR
CD Drive
1 BLACK
2 ORANGE
INNER SWITCH
DISC MOTO R
3 GREEN
4 YELLOW

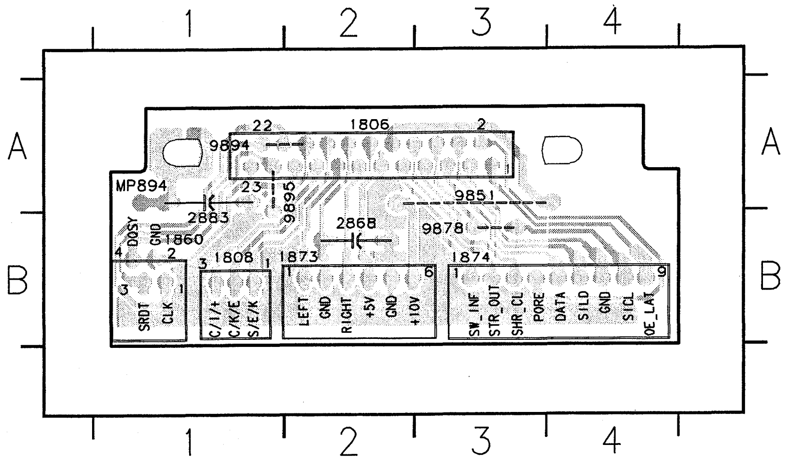
Remarks

Blockdiagram

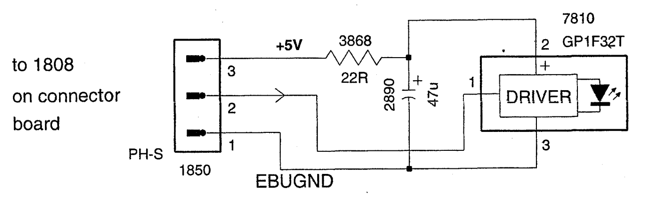

CD MECHANISM
PHOTODIODE & HF AMPLIFIER - LOADER CONTROL PCB
DISC
TURNTABLE MOTOR
FOCUS MOTOR
FOCB+
FOCB-
RADIAL MOTOR
RADB+
RADB-
SLEDGE MOTOR
SLEDGEB+
SLEDGEB-
TURNTABLE MOTOR
TTM-
TTM+
LASER POWER CONTROL
PHOTO DIODES
D1
D2
D3
D4
D5
D1-D5
D2-D4
7806
TDA7073A
7807
TDA7073A
+5V
7808-7809
7801
HF AMPLIFIER 74HCU04D
7800
SERVO - DECODER
CD7
SAA7378
FO
RA
SL
MOT1
MOT2
LD ON
D1 D2 D3 D4 R1,R2
HF IN
27
26
28
33
34
64
15
PORE
SILD
SCL
SDA
VCC
57
54
52
51
2,19,30,47,59
+4V
7874
7875
+5V
7851
DAC
TDA1311
BCK
WS
DATA
Vout R
Vout L
8
6
CD RIGHT
CD LEFT
13
15
+10V
+5V
10
12
1805
2
PORE
4
SILD
6
SCL
5
DATA
1
OE_LATCH
8
STR-OUTP
7
SHR_CL
9
SWITCH INFO
1806
CONNECTOR PCB
FLEX-FOIL
MODULE INTERFACE
INNER SWITCH
SWITCH INFO
1880
CD POS. SWITCH
1881
TRAY SWITCH
1882
CARROUSEL SWITCH
7873
SHIFT REGISTER
HEF4094BT
O4
O6
O5
O7
O0
O1
O2
O3
14
12
13
11
4
5
6
7
DATA
EN1
STB
SHR_CL
VCC
15
15
1
3
16
+10V
5V1
7871
TDA7073A
CARROUSEL MOTOR
TRAY MOTOR

Connector Board Copperside view

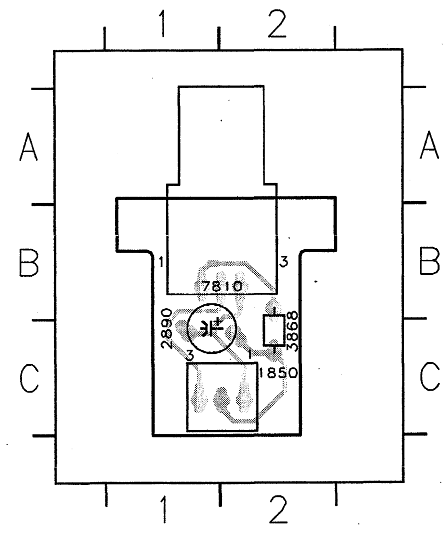
1806	A2	1873	B2	2883	B1	9894	A1
1808	B1	1874	B3	9851	A3	9895	A2
1860	B1	2868	B2	9878	B3	MP894	A1


1
2
3
4
A
B
22
1806
2
9894
MP894
23
9895
9851
2883
2868
9878
1860
1808
1873
1874
DOSY
GND
SRDT
CLK
C/I/+
C/K/E
S/E/K
LEFT
GND
RIGHT
+5V
GND
+10V
SW_INF
STR_OUT
SHR_CL
PORE
DATA
SILD
GND
SICL
OE_LAT

Circuit Diagram Optical out


to 1808
on connector
board
PH-S
1850
+5V
3868
22R
2890
47u
7810
GP1F32T
DRIVER
EBUGND
1
2
3

Component Layout Optical out

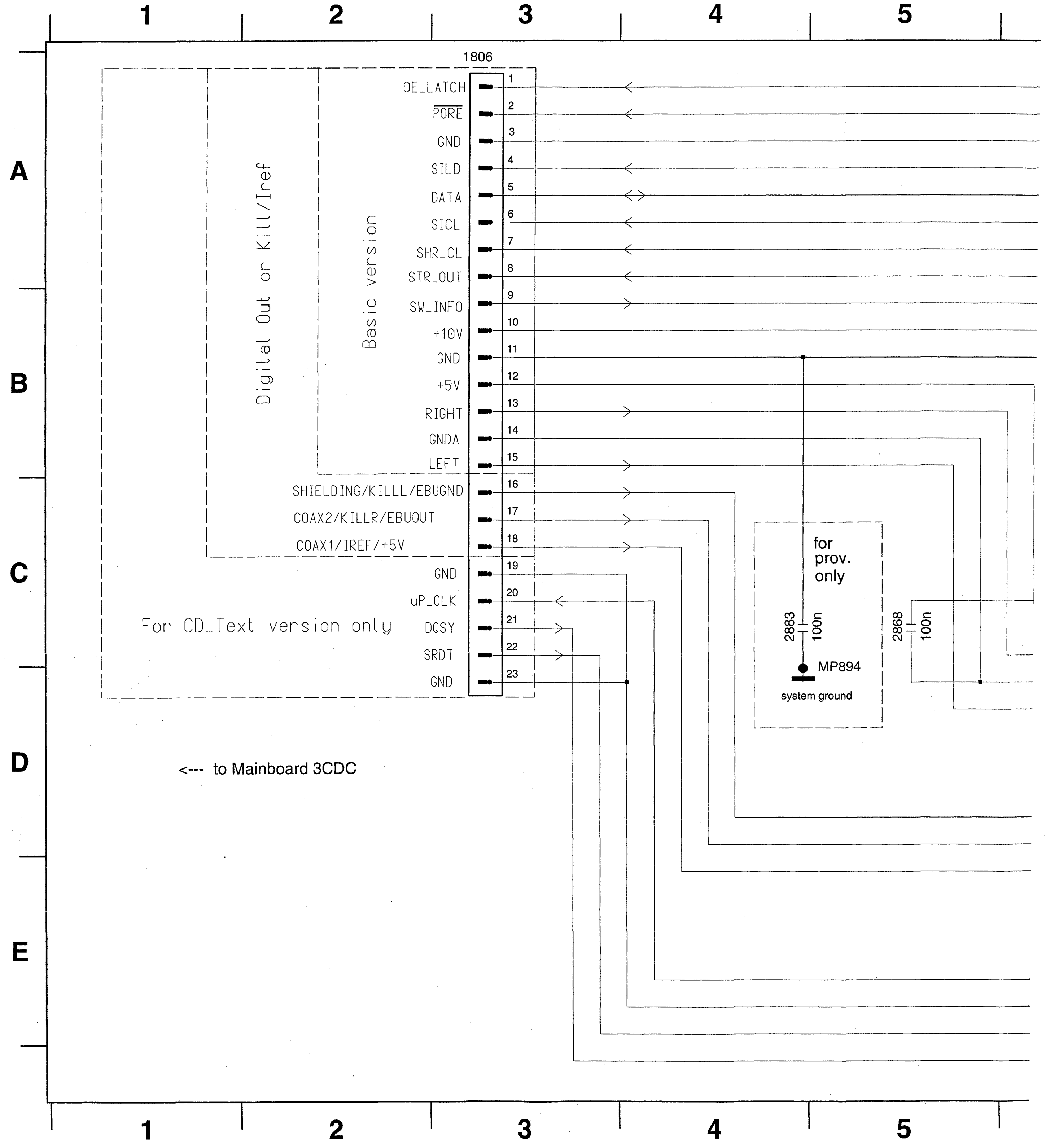

1
2
A
B
C
7810
2890
3868
1850

1850	C2
2890	C1
3868	C2
7810	B1

NOT ON ALL VERSIONS

Circuit diagram Connector Board

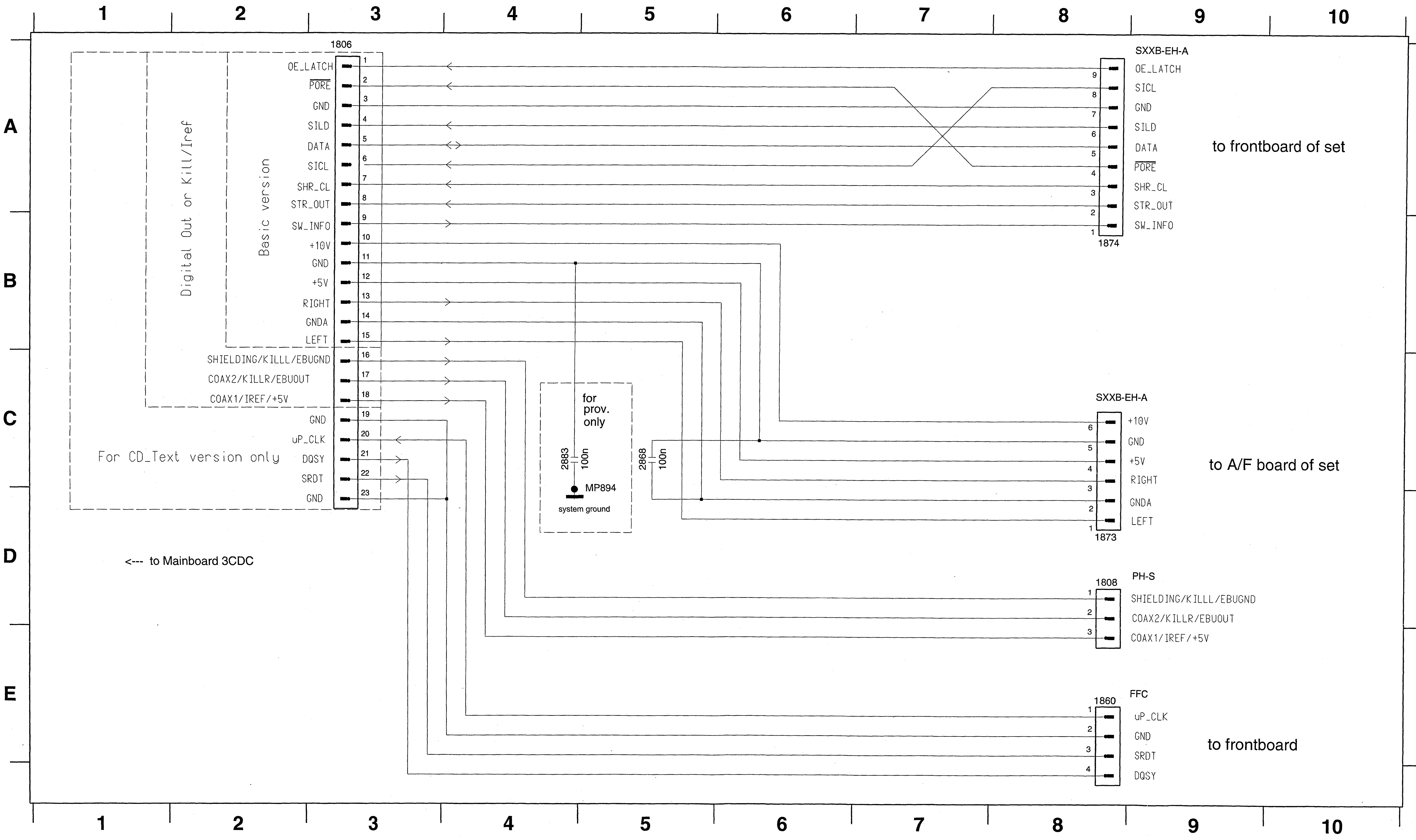
1806	A3	1860	E8	1874	B8	2883	C4
1808	D8	1873	D8	2868	C5		


1
2
3
4
5
A
B
C
D
E
1806
OE_LATCH
PORE
GND
SILD
DATA
SICL
SHR_CL
STR_OUT
SW_INFO
+10V
GND
+5V
RIGHT
GNDA
LEFT
SHIELDING/KILLL/EBUGND
COAX2/KILLR/EBUOUT
COAX1/IREF/+5V
GND
uP_CLK
DQSY
SRDT
GND
Digital Out or Kill/Iref
Basic version
For CD_Text version only
for
prov.
only
2883
100n
2868
100n
MP894
system ground
<--- to Mainboard 3CDC

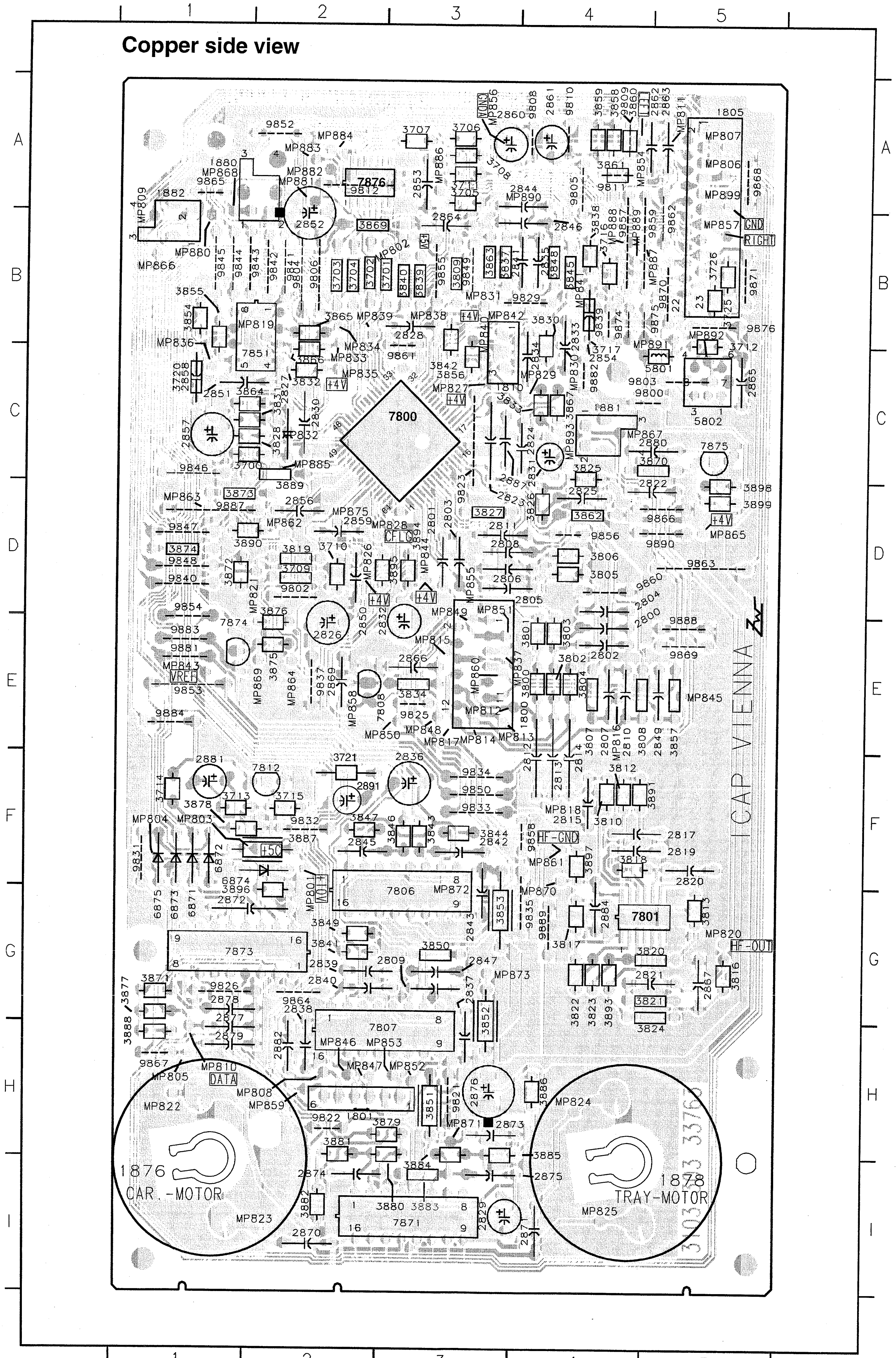
Circuit diagram Connector Board

1806	A3	1860	E8	1874	B8	2883	C4
1808	D8	1873	D8	2868	C5		

1850	C2
2890	C1
3868	C2
7810	B1


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
1806
OE_LATCH
PORE
GND
SILD
DATA
SICL
SHR_CL
STR_OUT
SW_INFO
+10V
GND
+5V
RIGHT
GNDA
LEFT
SHIELDING/KILLL/EBUGND
COAX2/KILLR/EBUOUT
COAX1/IREF/+5V
GND
uP_CLK
DQSY
SRDT
GND
Digital Out or Kill/Iref
Basic version
For CD_Text version only
<--- to Mainboard 3CDC
for prov. only
2883
100n
MP894
system ground
2868
100n
SXXB-EH-A
1874
OE_LATCH
SICL
GND
SILD
DATA
PORE
SHR_CL
STR_OUT
SW_INFO
to frontboard of set
SXXB-EH-A
1873
+10V
GND
+5V
RIGHT
GNDA
LEFT
to A/F board of set
PH-S
1808
SHIELDING/KILLL/EBUGND
COAX2/KILLR/EBUOUT
COAX1/IREF/+5V
FFC
1860
uP_CLK
GND
SRDT
DQSY
to frontboard

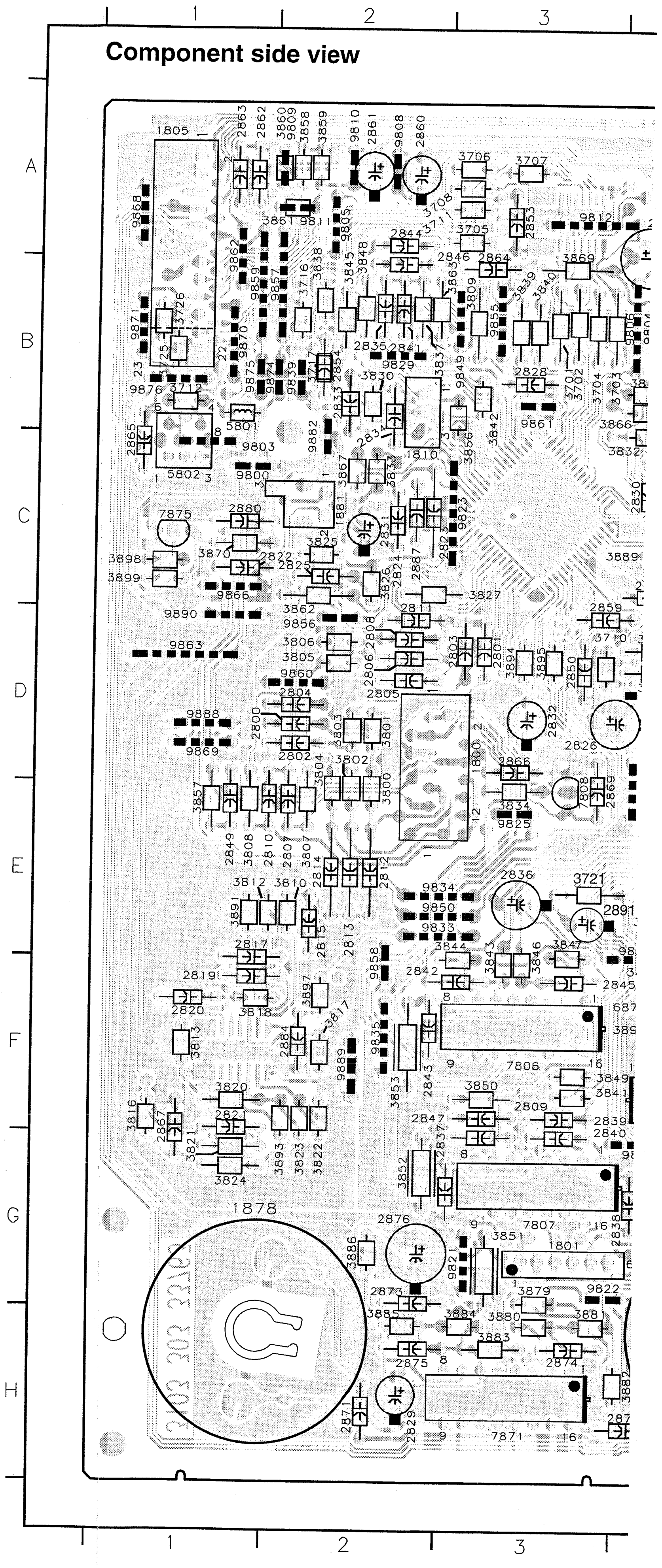
Copper side view



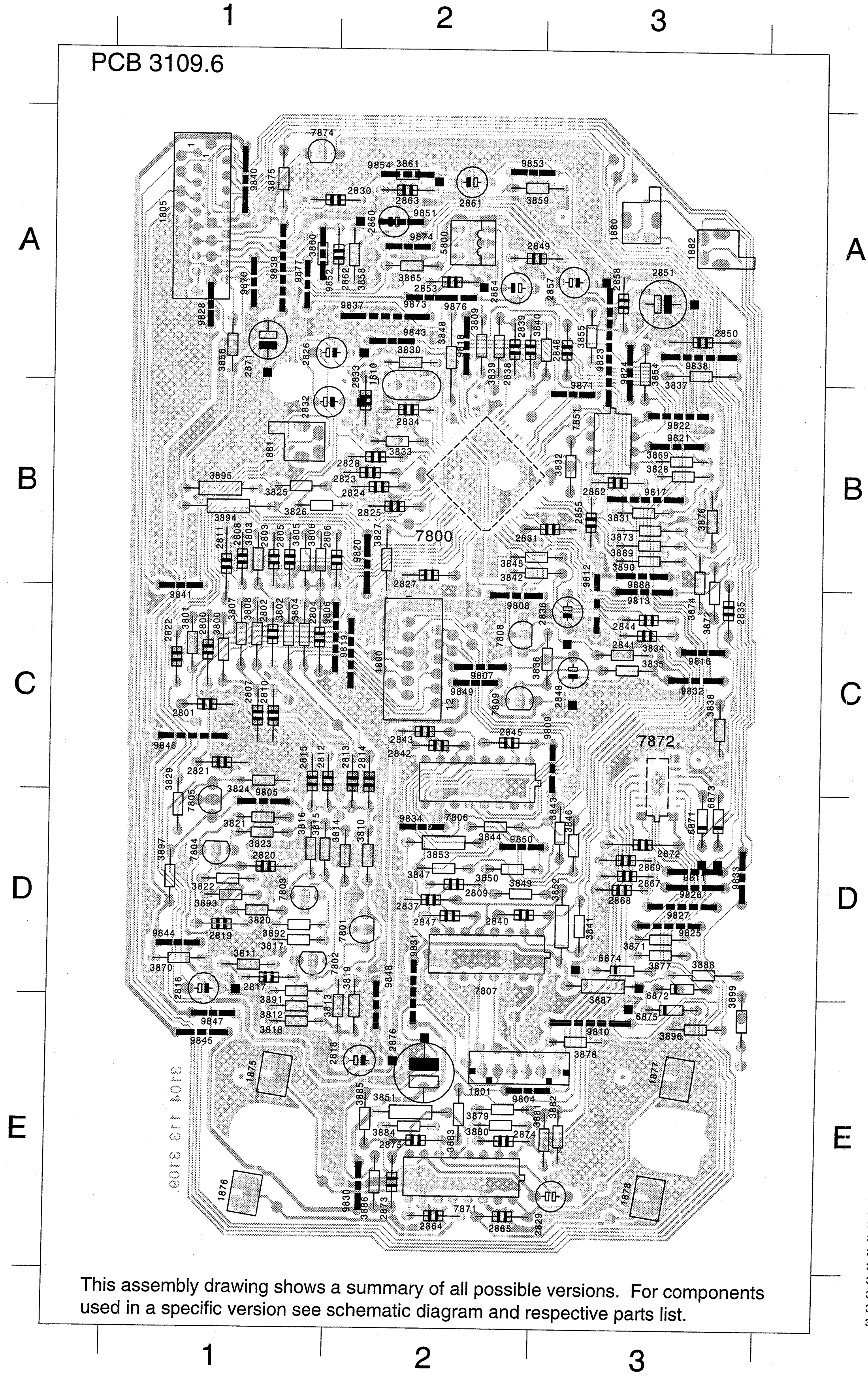
CS 53 009

1800	E3	2869	E2	3842	B3	9802	D2
1801	H2	2870	I2	3843	F3	9803	C5
1805	B5	2871	I4	3844	F3	9804	B2
1810	C3	2872	G2	3845	B4	9805	A4
1876	I1	2873	H3	3846	F3	9806	B2
1878	I4	2874	I2	3847	F2	9808	A4
1880	B2	2875	I3	3848	B4	9809	A4
1881	C4	2876	H3	3849	G2	9810	A4
1882	B1	2877	G1	3850	G3	9811	A4
2800	D4	2878	G1	3851	H3	9812	A2
2801	D3	2879	H1	3852	G3	9821	H3
2802	E4	2880	C5	3853	G3	9822	H2
2803	D3	2881	F1	3854	B1	9823	C3
2804	D4	2882	H2	3855	B1	9825	E3
2805	D3	2884	G4	3856	C3	9826	G1
2806	D3	2887	C3	3857	E5	9829	B4
2807	E4	3700	C1	3858	A4	9831	F1
2808	D3	3701	B3	3859	A4	9832	F2
2809	G3	3702	B2	3860	A4	9833	F3
2810	E4	3703	B2	3861	A4	9834	F3
2811	D3	3704	B2	3862	D4	9835	G4
2812	F4	3705	A3	3863	B3	9837	E2
2813	F4	3706	A3	3864	C1	9839	B4
2814	F4	3707	A3	3865	B2	9840	D1
2815	F4	3708	A3	3866	C2	9841	B2
2817	F4	3709	D2	3867	C4	9842	B2
2819	F4	3710	D2	3869	B2	9843	B2
2820	F5	3711	A3	3870	C5	9844	B1
2821	G5	3712	B5	3871	G1	9845	B1
2822	D5	3713	F1	3872	D1	9846	C1
2823	C3	3714	F1	3873	D1	9847	D1
2824	C4	3715	F2	3874	D1	9848	D1
2825	D4	3716	B4	3875	E2	9849	B3
2826	D2	3717	B4	3876	E2	9850	F3
2827	C2	3720	C1	3877	G1	9852	A2
2828	B3	3725	B5	3878	F2	9853	E1
2829	I3	3726	B5	3879	H3	9854	D1
2830	C2	3800	E4	3880	H3	9855	B3
2831	C4	3801	E4	3881	H2	9856	D4
2832	E3	3802	E4	3882	I2	9857	B4
2833	B4	3803	E4	3883	I3	9858	F4
2834	C3	3804	E4	3884	H3	9859	B4
2835	B4	3805	D4	3885	H3	9860	D4
2836	F3	3806	D4	3886	H4	9861	B3
2837	H3	3807	E4	3887	F2	9862	B5
2838	H2	3808	E4	3888	H1	9863	D5
2839	G2	3809	B3	3889	C2	9864	G2
2840	G2	3810	F4	3890	D1	9865	A1
2841	B3	3812	F4	3891	F4	9866	D5
2842	F3	3813	G5	3893	G4	9867	H1
2843	G3	3816	G5	3894	D3	9868	A5
2844	B4	3817	G4	3895	D3	9869	E5
2845	F2	3818	F4	3896	G2	9870	B5
2846	B4	3819	D2	3897	F4	9871	B5
2847	G3	3820	G5	3898	D5	9874	B4
2849	E5	3821	G5	3899	D5	9875	B4
2850	D2	3822	G4	5801	B5	9876	B5
2851	C1	3823	G4	5802	C5	9881	E1
2852	A2	3824	G5	6871	F1	9882	C4
2853	A3	3825	C4	6872	F1	9883	E1
2854	B4	3826	D4	6873	F1	9884	E1
2856	D2	3827	D3	6874	F2	9887	D1
2857	C1	3828	C1	6875	F1	9888	E5
2858	C1	3830	B4	7806	G3	9889	G4
2859	D2	3831	C1	7807	H3	9890	D5
2860	A3	3832	C2	7808	E2		
2861	A4	3833	C4	7812	F2		
2862	A4	3834	E3	7851	B2		
2863	A5	3837	B3	7871	I3		
2864	B3	3838	B4	7873	G1		
2865	C5	3839	B3	7874	E1		
2866	E3	3840	B3	7875	C5		
2867	G5	3841	G2	9800	C4		

Component side view



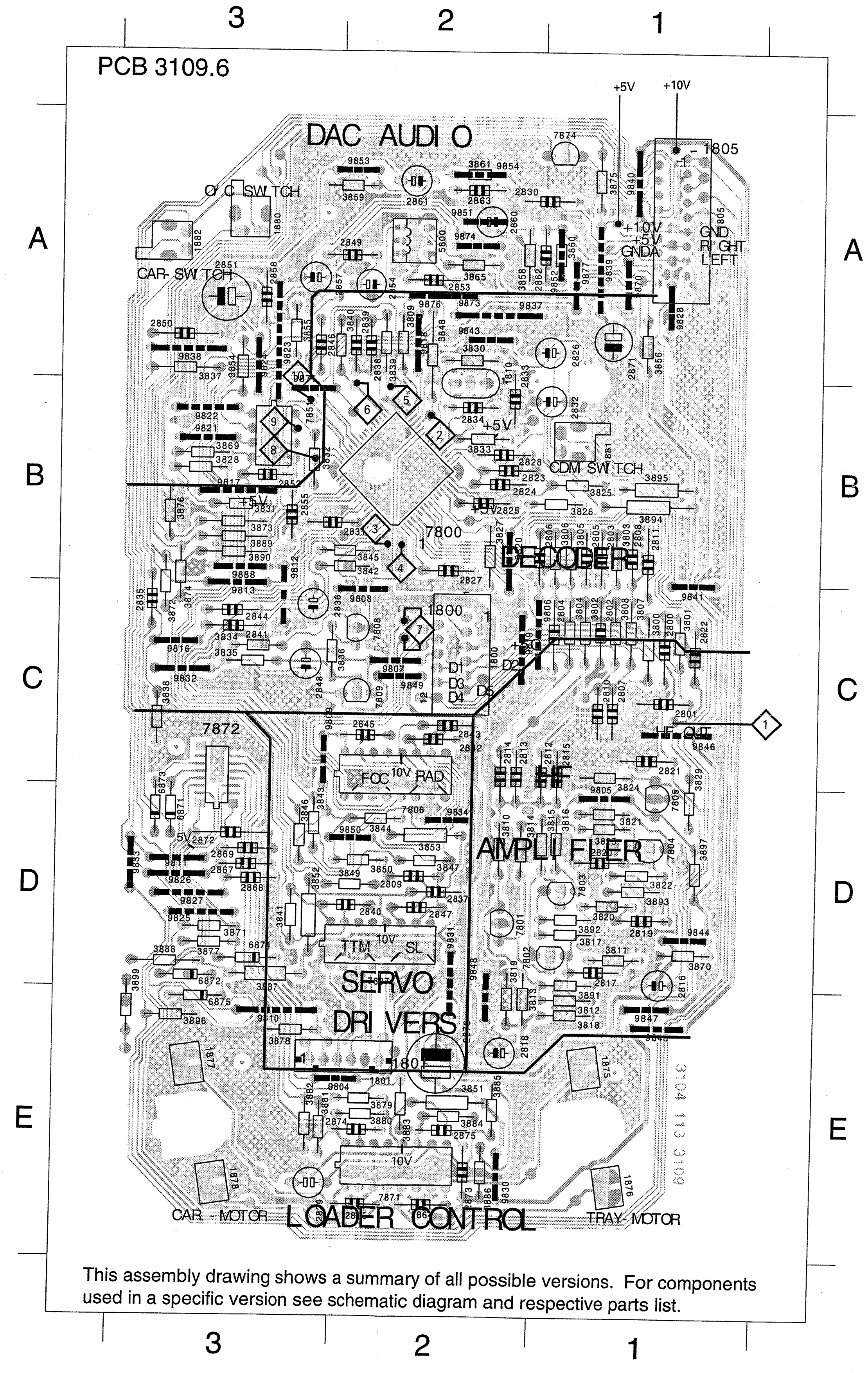
CDC-3 COMPONENT LAYOUT


1
2
3
A
B
C
D
E
PCB 3109.6
7800
7872
7807
7871
3104 113 3109

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

1800	C 2	3807	C 1	7801	D 2
1801	E 2	3808	C 1	7802	D 1
1805	A 1	3809	A 2	7803	D 1
1810	B 2	3810	D 2	7804	D 1
1875	E 1	3811	D 1	7805	D 1
1876	E 1	3812	E 1	7806	C 2
1877	E 3	3813	E 2	7807	D 2
1878	E 3	3814	D 2	7808	C 2
1880	A 3	3815	D 1	7809	C 2
1881	B 1	3816	D 1	7851	B 3
1882	A 3	3817	D 1	7871	E 2
2800	C 1	3818	E 1	7874	A 1
2801	C 1	3819	E 2	9804	E 2
2802	C 1	3820	D 1	9805	D 1
2803	B 1	3821	D 1	9806	C 2
2804	C 1	3822	D 1	9807	C 2
2805	B 1	3823	D 1	9808	C 2
2806	B 2	3824	C 1	9809	C 3
2807	C 1	3825	B 1	9810	E 3
2808	B 1	3826	B 1	9811	D 3
2809	D 2	3827	B 2	9812	C 3
2810	C 1	3828	B 3	9813	C 3
2811	B 1	3829	D 1	9816	C 3
2812	C 1	3830	A 2	9817	B 3
2813	C 2	3831	B 3	9818	A 2
2814	C 2	3832	B 3	9819	C 2
2815	C 1	3833	B 2	9820	B 2
2816	D 1	3834	C 3	9821	B 3
2817	D 1	3835	C 3	9822	B 3
2818	E 2	3836	C 3	9823	A 3
2819	D 1	3837	A 3	9824	A 3
2820	D 1	3838	C 3	9825	D 3
2821	C 1	3839	A 2	9826	D 3
2822	C 1	3840	A 3	9827	D 3
2823	B 2	3841	D 3	9828	A 1
2824	B 2	3842	B 2	9830	E 2
2825	B 2	3843	D 3	9831	D 2
2826	A 1	3844	D 2	9832	C 3
2827	B 2	3845	B 2	9833	D 3
2828	B 2	3846	D 3	9834	D 2
2829	E 3	3847	D 2	9837	A 2
2830	A 1	3848	A 2	9838	A 3
2831	B 3	3849	D 2	9839	A 1
2832	B 1	3850	D 2	9840	A 1
2833	B 2	3851	E 2	9841	C 1
2834	B 2	3852	D 3	9843	A 2
2835	C 3	3853	D 2	9844	D 1
2836	C 3	3854	A 3	9845	E 1
2837	D 2	3855	A 3	9846	C 1
2838	A 2	3856	A 1	9847	E 1
2839	A 2	3858	A 2	9848	E 2
2840	D 2	3859	A 2	9849	C 2
2841	C 3	3860	A 1	9850	D 2
2842	C 2	3861	A 2	9851	A 2
2843	C 2	3865	A 2	9852	A 1
2844	C 3	3869	B 3	9853	A 2
2845	C 2	3870	D 1	9854	A 2
2846	A 3	3871	D 3	9870	A 1
2847	D 2	3872	C 3	9871	B 3
2848	C 3	3873	B 3	9873	A 2
2849	A 2	3874	B 3	9874	A 2
2850	A 3	3875	A 1	9876	A 2
2851	A 3	3876	B 3	9877	A 1
2852	B 3	3877	D 3	9888	B 3
2853	A 2	3878	E 3		
2854	A 2	3879	E 2		
2855	B 3	3880	E 2		
2857	A 3	3881	E 3		
2858	A 3	3882	E 3		
2860	A 2	3883	E 2		
2861	A 2	3884	E 2		
2862	A 1	3885	E 2		
2863	A 2	3886	E 2		
2864	E 2	3887	D 3		
2865	E 2	3888	D 3		
2867	D 3	3889	B 3		
2868	D 3	3890	B 3		
2869	D 3	3891	D 1		
2871	A 1	3892	D 1		
2872	D 3	3893	D 1		
2873	E 2	3894	B 1		
2874	E 2	3895	B 1		
2875	E 2	3896	E 3		
2876	E 2	3897	D 1		
3800	C 1	3899	E 3		
3801	C 1	5800	A 2		
3802	C 1	6871	D 3		
3803	B 1	6872	D 3		
3804	C 1	6873	D 3		
3805	B 1	6874	D 3		
3806	B 1	6875	E 3		

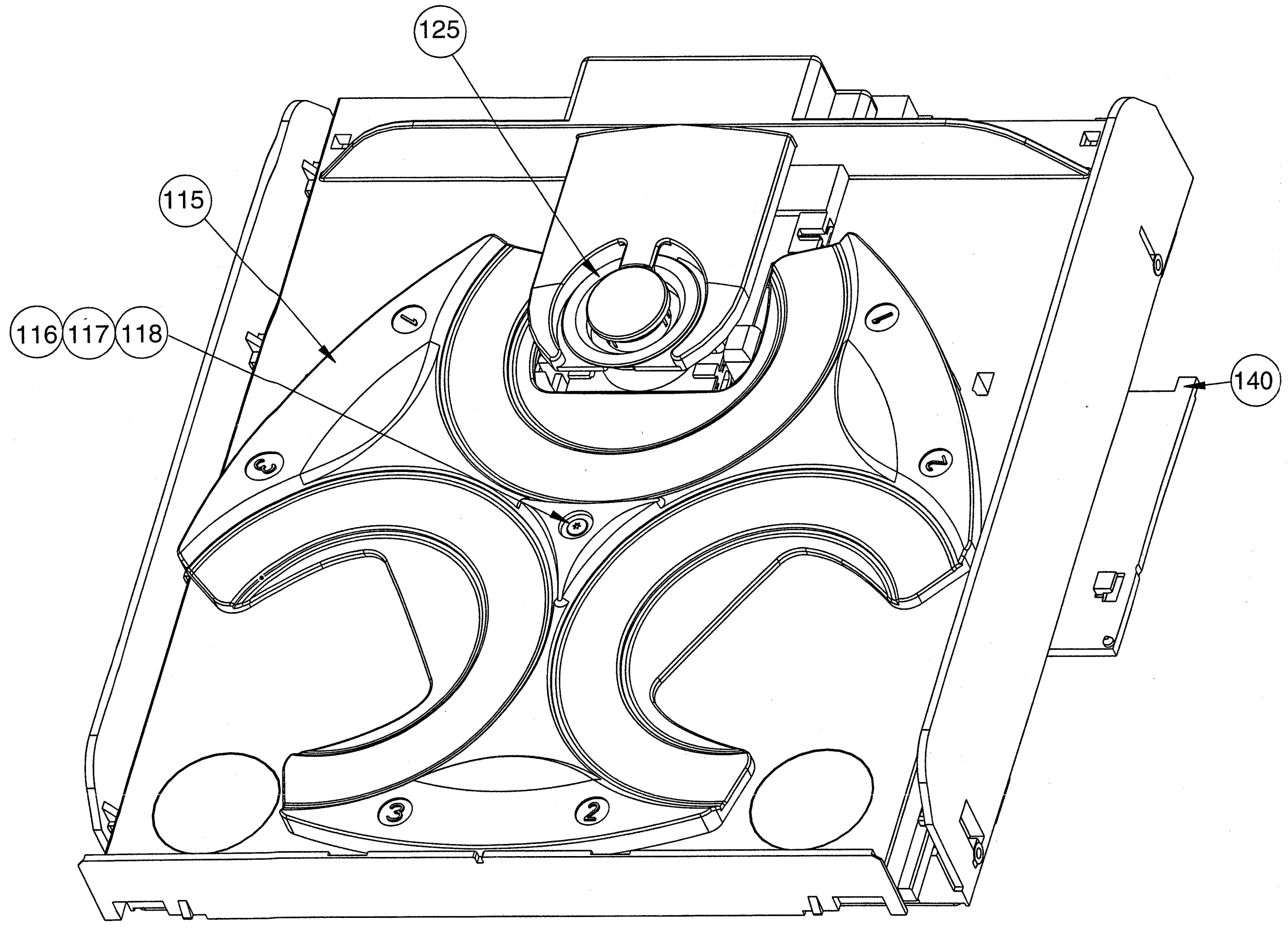
CDC-3 CHIP LAYOUT

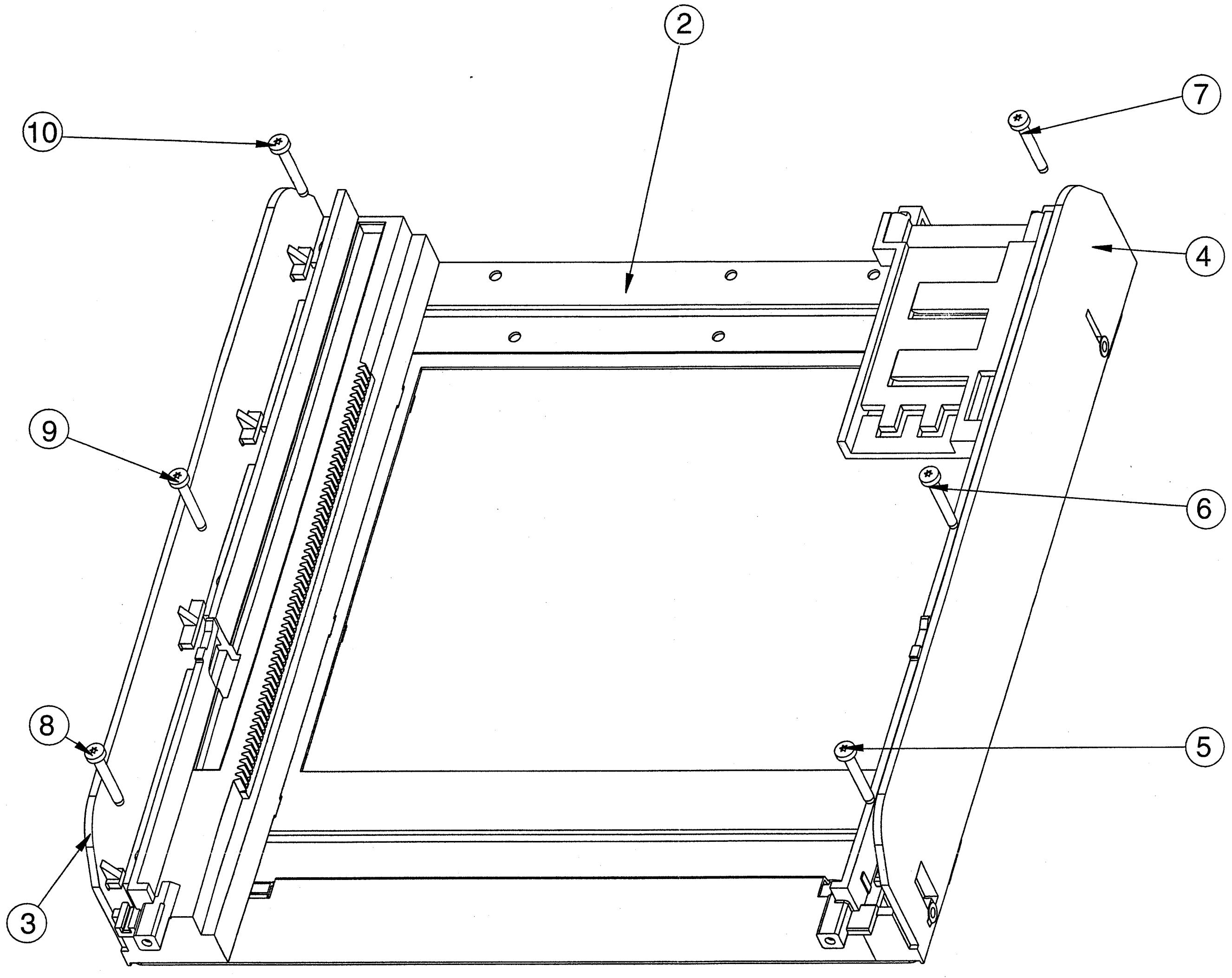

3
2
1
A
B
C
D
E
PCB 3109.6
+5V
+10V
1805
DAC AUDIO
O C SWITCH
CAR- SWITCH
+10V
+5V
GNDA
GND
RIGHT
LEFT
7874
+5V
CDM SWITCH
7800
DECODER
1800
D1
D2
D3
D4
D5
HF-OUT
7872
FOC
10V
RAD
AMPLIFIER
5V
TTM
SL
SERVO
DRIVERS
1801
10V
CAR.-MOTOR
LOADER CONTROL
TRAY-MOTOR
3104 113 3109

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

7800	B	2
7872	C	3

CDC EXPLODED VIEW I

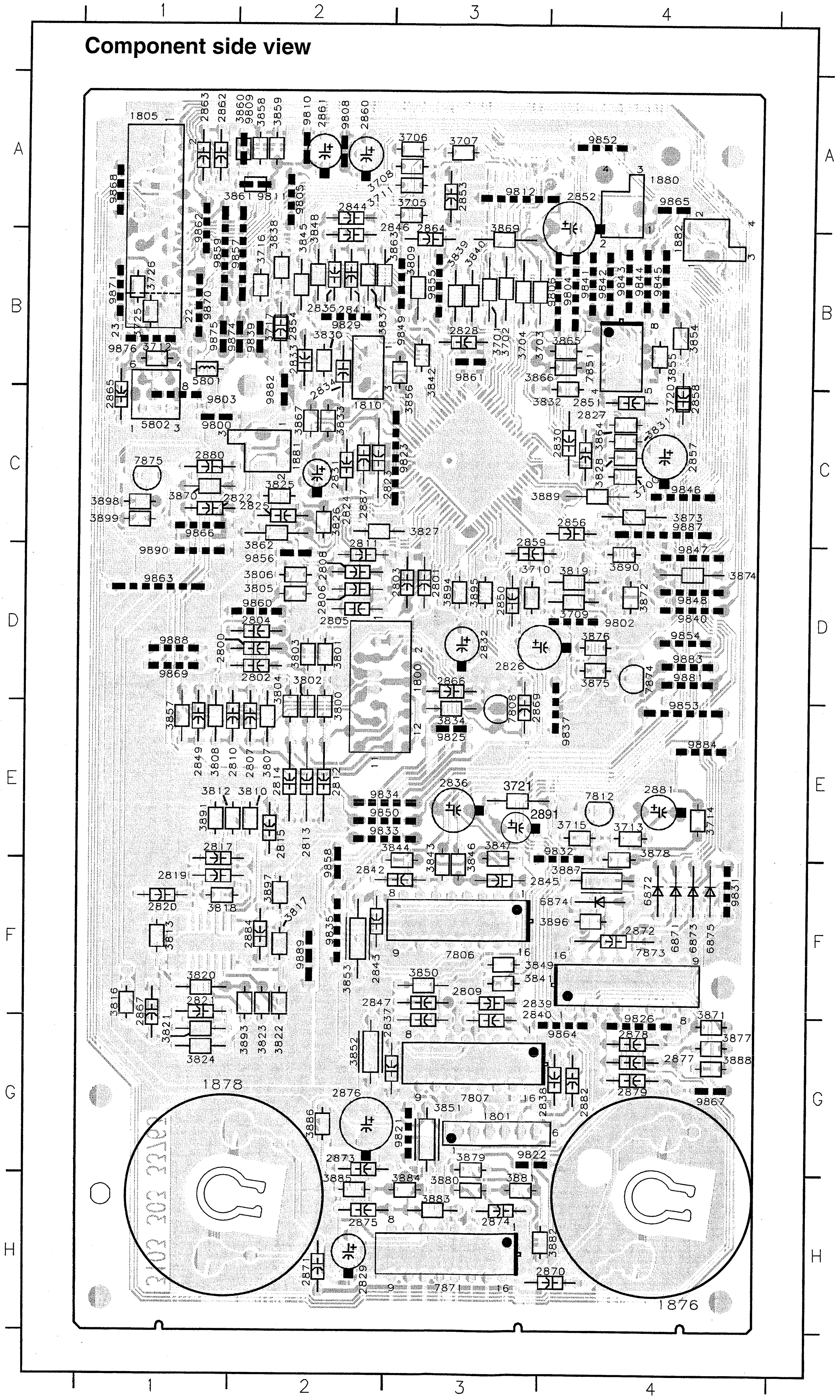




3	4822 463 11008	Guide Left
4	4822 463 11009	Guide Right
21	4822 441 11615	Drawer
22	4822 402 10088	Tumbler
35	4822 361 10753	Carrousel Motor
38	4822 502 12548	Screw M2,6 X 3,5
39	4822 502 12548	Screw M2,6 X 3,5
40	4822 463 11011	Slide
41	4822 522 10509	Control Disc
42	4822 522 10492	Gear Wheel
43	4822 528 10937	Pulley
44	4822 522 10493	Idler Wheel
45	4822 358 10115	Belt
46	4822 466 10735	Eccentric Gear Wheel
50	4822 532 12364	Washer
51	4822 532 12364	Washer
52	4822 532 12364	Washer
53	4822 532 12364	Washer
70	4822 361 10753	Tray Motor
73	4822 502 12548	Screw M 2,6 X 3,5
74	4822 502 12548	Screw M 2,6 X 3,5
80	4822 528 10937	Pulley
81	4822 522 10494	Gear Wheel
82	4822 358 10115	Belt
83	4822 532 12364	Washer
84	4822 532 12364	Washer
95	4822 404 10894	CDM Support
96	4822 325 50215	Suspension
97	4822 325 50215	Suspension
98	4822 325 50215	Suspension
99	4822 325 50215	Suspension
100	4822 691 30278	CDM-12.1 Mechanism
115	4822 466 10736	Carrousel
117	4822 532 12365	Bush
120	4822 532 51756	Damping Grommet
121	4822 532 51756	Damping Grommet
123	4822 402 10085	Switch Bracket
125	4822 532 52386	Clamper
140	4822 466 10734	Flex Cable Protection Plate
	4822 320 11183	Flexfoil 17P
	4822 390 10136	Lub. Grease Polylub GLY801

NOTE: Only the parts mentioned in this list are normal service spare parts.

1800 E3	2869 E2	3842 B3	9802 D2
1801 H2	2870 I2	3843 F3	9803 C5
1805 B5	2871 I4	3844 F3	9804 B2
1810 C3	2872 G2	3845 B4	9805 A4
1876 I1	2873 H3	3846 F3	9806 B2
1878 I4	2874 I2	3847 F2	9808 A4
1880 B2	2875 I3	3848 B4	9809 A4
1881 C4	2876 H3	3849 G2	9810 A4
1882 B1	2877 G1	3850 G3	9811 A4
2800 D4	2878 G1	3851 H3	9812 A2
2801 D3	2879 H1	3852 G3	9821 H3
2802 E4	2880 C5	3853 G3	9822 H2
2803 D3	2881 F1	3854 B1	9823 C3
2804 D4	2882 H2	3855 B1	9825 E3
2805 D3	2884 G4	3856 C3	9826 G1
2806 D3	2887 C3	3857 E5	9829 B4
2807 E4	3700 C1	3858 A4	9831 F1
2808 D3	3701 B3	3859 A4	9832 F2
2809 G3	3702 B2	3860 A4	9833 F3
2810 E4	3703 B2	3861 A4	9834 F3
2811 D3	3704 B2	3862 D4	9835 G4
2812 F4	3705 A3	3863 B3	9837 E2
2813 F4	3706 A3	3864 C1	9839 B4
2814 F4	3707 A3	3865 B2	9840 D1
2815 F4	3708 A3	3866 C2	9841 B2
2817 F4	3709 D2	3867 C4	9842 B2
2819 F4	3710 D2	3869 B2	9843 B2
2820 F5	3711 A3	3870 C5	9844 B1
2821 G5	3712 B5	3871 G1	9845 B1
2822 D5	3713 F1	3872 D1	9846 C1
2823 C3	3714 F1	3873 D1	9847 D1
2824 C4	3715 F2	3874 D1	9848 D1
2825 D4	3716 B4	3875 E2	9849 B3
2826 D2	3717 B4	3876 E2	9850 F3
2827 C2	3720 C1	3877 G1	9852 A2
2828 B3	3725 B5	3878 F2	9853 E1
2829 I3	3726 B5	3879 H3	9854 D1
2830 C2	3800 E4	3880 H3	9855 B3
2831 C4	3801 E4	3881 H2	9856 D4
2832 E3	3802 E4	3882 I2	9857 B4
2833 B4	3803 E4	3883 I3	9858 F4
2834 C3	3804 E4	3884 H3	9859 B4
2835 B4	3805 D4	3885 H3	9860 D4
2836 F3	3806 D4	3886 H4	9861 B3
2837 H3	3807 E4	3887 F2	9862 B5
2838 H2	3808 E4	3888 H1	9863 D5
2839 G2	3809 B3	3889 C2	9864 G2
2840 G2	3810 F4	3890 D1	9865 A1
2841 B3	3812 F4	3891 F4	9866 D5
2842 F3	3813 G5	3893 G4	9867 H1
2843 G3	3816 G5	3894 D3	9868 A5
2844 B4	3817 G4	3895 D3	9869 E5
2845 F2	3818 F4	3896 G2	9870 B5
2846 B4	3819 D2	3897 F4	9871 B5
2847 G3	3820 G5	3898 D5	9874 B4
2849 E5	3821 G5	3899 D5	9875 B4
2850 D2	3822 G4	5801 B5	9876 B5
2851 C1	3823 G4	5802 C5	9881 E1
2852 A2	3824 G5	6871 F1	9882 C4
2853 A3	3825 C4	6872 F1	9883 E1
2854 B4	3826 D4	6873 F1	9884 E1
2856 D2	3827 D3	6874 F2	9887 D1
2857 C1	3828 C1	6875 F1	9888 E5
2858 C1	3830 B4	7806 G3	9889 G4
2859 D2	3831 C1	7807 H3	9890 D5
2860 A3	3832 C2	7808 E2	
2861 A4	3833 C4	7812 F2	
2862 A4	3834 E3	7851 B2	
2863 A5	3837 B3	7871 I3	
2864 B3	3838 B4	7873 G1	
2865 C5	3839 B3	7874 E1	
2866 E3	3840 B3	7875 C5	
2867 G5	3841 G2	9800 C4	



Component side view

1800 D3	2869 E3	3842 B3	9802 D4
1801 G3	2870 H4	3843 F3	9803 C1
1805 A1	2871 H2	3844 F3	9804 B4
1810 B2	2872 F4	3845 B2	9805 A2
1876 H4	2873 G2	3846 F3	9806 B4
1878 H1	2874 H3	3847 E3	9808 A2
1880 B4	2875 H2	3848 B2	9809 A2
1881 C2	2876 G3	3849 F3	9810 A2
1882 B4	2877 G4	3850 F3	9811 A2
2800 D2	2878 G4	3851 G3	9812 A3
2801 D3	2879 G4	3852 G2	9821 G3
2802 D2	2880 C1	3853 F2	9822 G3
2803 D3	2881 E4	3854 B4	9823 C3
2804 D2	2882 G4	3855 B4	9825 E3
2805 D2	2884 F2	3856 B3	9826 G4
2806 D2	2887 C2	3857 E1	9829 B2
2807 E2	3700 C4	3858 A2	9831 F4
2808 D2	3701 B3	3859 A2	9832 E4
2809 F3	3702 B3	3860 A2	9833 E2
2810 E2	3703 B3	3861 A2	9834 E2
2811 D2	3704 B3	3862 C2	9835 F2
2812 E2	3705 A3	3863 B2	9837 E4
2813 E2	3706 A3	3864 C4	9839 B2
2814 E2	3707 A3	3865 B4	9840 D4
2815 E2	3708 A3	3866 B4	9841 B4
2817 F1	3709 D4	3867 C2	9842 B4
2819 F1	3710 D3	3869 B3	9843 B4
2820 F1	3711 A3	3870 C1	9844 B4
2821 G1	3712 B1	3871 G4	9845 B4
2822 C1	3713 E4	3872 D4	9846 C4
2823 C2	3714 E4	3873 C4	9847 D4
2824 C2	3715 E4	3874 D4	9848 D4
2825 C2	3716 B2	3875 D4	9849 B3
2826 D3	3717 B2	3876 D4	9850 E2
2827 C4	3720 C4	3877 G4	9852 A4
2828 B3	3725 B1	3878 E4	9853 E4
2829 H2	3726 B1	3879 G3	9854 D4
2830 C4	3800 E2	3880 H3	9855 B3
2831 C2	3801 D2	3881 H3	9856 D2
2832 D3	3802 E2	3882 H4	9857 B2
2833 B2	3803 D2	3883 H3	9858 F2
2834 B2	3804 E2	3884 H3	9859 B1
2835 B2	3805 D2	3885 H2	9860 D2
2836 E3	3806 D2	3886 G2	9861 B3
2837 G2	3807 E2	3887 F4	9862 A1
2838 G4	3808 E1	3888 G4	9863 D1
2839 F3	3809 B3	3889 C4	9864 G4
2840 F3	3810 E2	3890 D4	9865 A4
2841 B2	3812 E2	3891 E1	9866 C1
2842 F3	3813 F1	3893 F2	9867 G4
2843 F2	3816 F1	3894 D3	9868 A1
2844 B2	3817 F2	3895 D3	9869 D1
2845 F3	3818 F1	3896 F4	9870 B1
2846 B2	3819 D4	3897 F2	9871 B1
2847 F3	3820 F1	3898 C1	9874 B2
2849 E1	3821 G1	3899 C1	9875 B1
2850 D3	3822 F2	5801 B1	9876 B1
2851 C4	3823 F2	5802 C1	9881 D4
2852 A4	3824 G1	6871 F4	9882 C2
2853 A3	3825 C2	6872 F4	9883 D4
2854 B2	3826 C2	6873 F4	9884 E4
2856 C4	3827 C2	6874 F4	9887 C4
2857 C4	3828 C4	6875 F4	9888 D1
2858 C4	3830 B2	7806 F3	9889 F2
2859 C3	3831 C4	7807 G3	9890 D1
2860 A2	3832 C4	7808 E3	
2861 A2	3833 C2	7812 E4	
2862 A1	3834 E3	7851 B4	
2863 A1	3837 B2	7871 H3	
2864 B3	3838 B2	7873 F4	
2865 C1	3839 B3	7874 D4	
2866 E3	3840 B3	7875 C1	
2867 F1	3841 F3	9800 C1	

1800	E3
1801	H2
1805	B5
1810	C3
1876	I1
1878	I4
1880	B2
1881	C4
1882	B1
2800	D4
2801	D3
2802	E4
2803	D3
2804	D4
2805	D3
2806	D3
2807	E4
2808	D3
2809	G3
2810	E4
2811	D3
2812	F4
2813	F4
2814	F4
2815	F4
2817	F4
2819	F4
2820	F5
2821	G5
2822	D5
2823	C3
2824	C4
2825	D4
2826	D2
2827	C2
2828	B3
2829	I3
2830	C2
2831	C4
2832	E3
2833	B4
2834	C3
2835	B4
2836	F3
2837	H3
2838	H2
2839	G2
2840	G2
2841	B3
2842	F3
2843	G3
2844	B4
2845	F2
2846	B4
2847	G3
2849	E5
2850	D2
2851	C1
2852	A2
2853	A3
2854	B4
2856	D2
2857	C1
2858	C1
2859	D2
2860	A3
2861	A4
2862	A4
2863	A5
2864	B3
2865	C5
2866	E3
2867	G5
2869	E2
2870	I2
2871	I4
2872	G2
2873	H3
2874	I2
2875	I3
2876	H3
2877	G1
2878	G1
2879	H1
2880	C5
2881	F1
2882	H2
2884	G4
2887	C3
3700	C1
3701	B3
3702	B2
3703	B2
3704	B2
3705	A3
3706	A3
3707	A3
3708	A3
3709	D2
3710	D2
3711	A3
3712	B5
3713	F1
3714	F1
3715	F2
3716	B4
3717	B4
3720	C1
3725	B5
3726	B5
3800	E4
3801	E4
3802	E4
3803	E4
3804	E4
3805	D4
3806	D4
3807	E4
3808	E4
3809	B3
3810	F4
3812	F4
3813	G5
3816	G5
3817	G4
3818	F4
3819	D2
3820	G5
3821	G5
3822	G4
3823	G4
3824	G5
3825	C4
3826	D4
3827	D3
3828	C1
3830	B4
3831	C1
3832	C2
3833	C4
3834	E3
3837	B3
3838	B4
3839	B3
3840	B3
3841	G2
3842	B3
3843	F3
3844	F3
3845	B4
3846	F3
3847	F2
3848	B4
3849	G2
3850	G3
3851	H3
3852	G3
3853	G3
3854	B1
3855	B1
3856	C3
3857	E5
3858	A4
3859	A4
3860	A4
3861	A4
3862	D4
3863	B3
3864	C1
3865	B2
3866	C2
3867	C4
3869	B2
3870	C5
3871	G1
3872	D1
3873	D1
3874	D1
3875	E2
3876	E2
3877	G1
3878	F2
3879	H3
3880	H3
3881	H2
3882	I2
3883	I3
3884	H3
3885	H3
3886	H4
3887	F2
3888	H1
3889	C2
3890	D1
3891	F4
3893	G4
3894	D3
3895	D3
3896	G2
3897	F4
3898	D5
3899	D5
5801	B5
5802	C5
6871	F1
6872	F1
6873	F1
6874	F2
6875	F1
7806	G3
7807	H3
7808	E2
7812	F2
7851	B2
7871	I3
7873	G1
7874	E1
7875	C5
9800	C4
9802	D2
9803	C5
9804	B2
9805	A4
9806	B2
9808	A4
9809	A4
9810	A4
9811	A4
9812	A2
9821	H3
9822	H2
9823	C3
9825	E3
9826	G1
9829	B4
9831	F1
9832	F2
9833	F3
9834	F3
9835	G4
9837	E2
9839	B4
9840	D1
9841	B2
9842	B2
9843	B2
9844	B1
9845	B1
9846	C1
9847	D1
9848	D1
9849	B3
9850	F3
9852	A2
9853	E1
9854	D1
9855	B3
9856	D4
9857	B4
9858	F4
9859	B4
9860	D4
9861	B3
9862	B5
9863	D5
9864	G2
9865	A1
9866	D5
9867	H1
9868	A5
9869	E5
9870	B5
9871	B5
9874	B4
9875	B4
9876	B5
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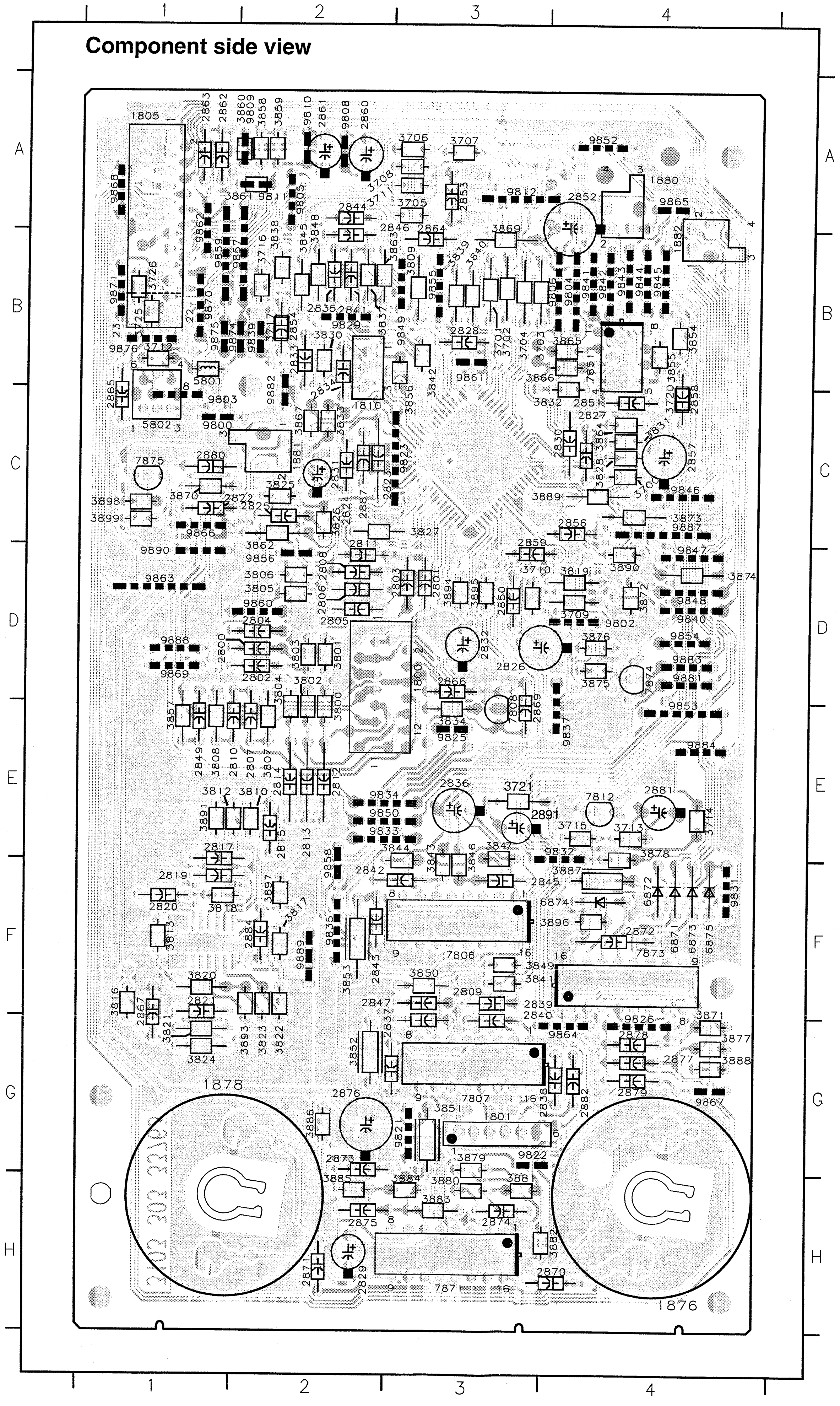
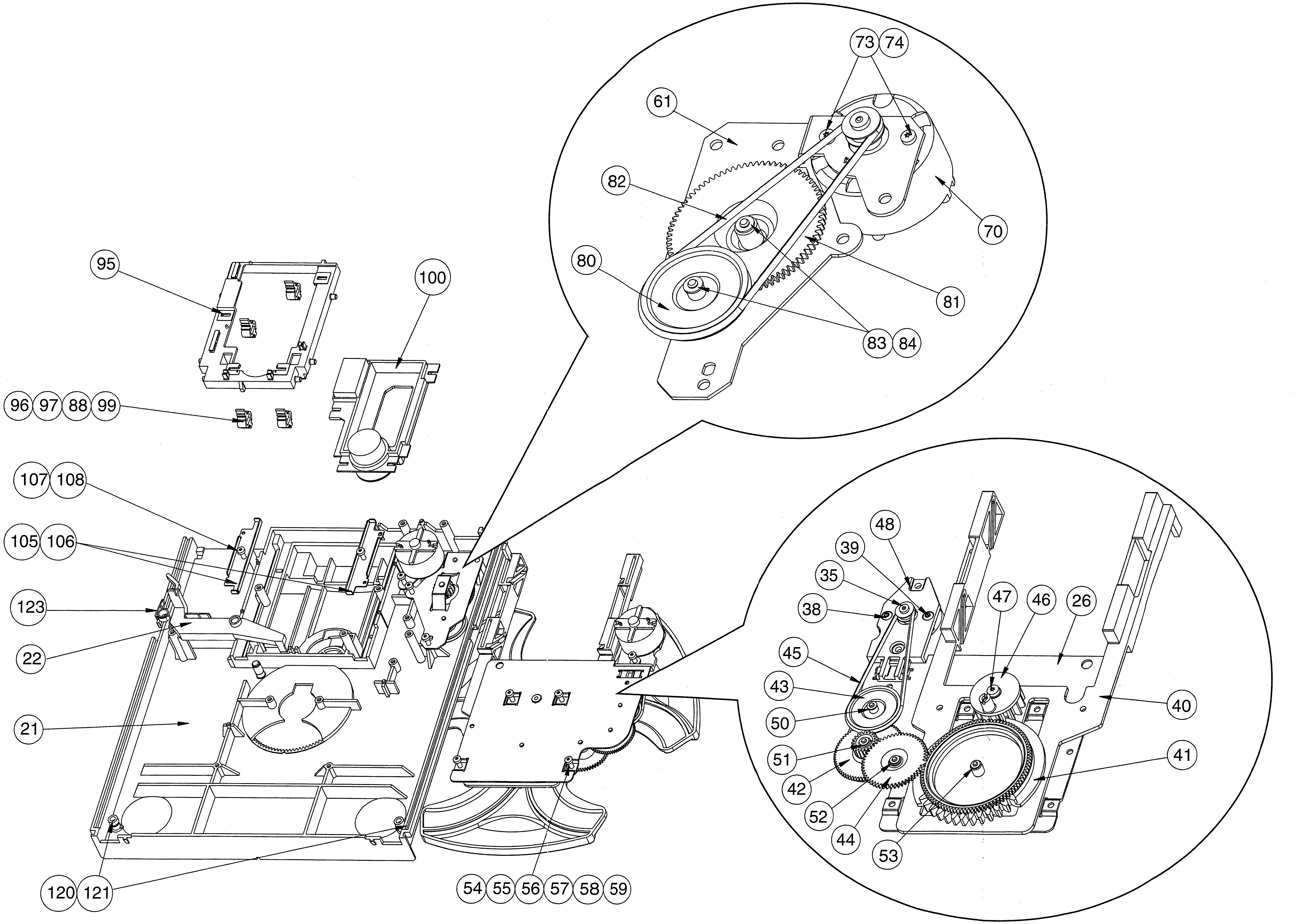
9882	C4
9883	E1
9884	E1
9887	D1
9888	E5
9889	G4
9890	D5



Component side view

1800	D3
1801	G3
1805	A1
1810	B2
1876	H4
1878	H1
1880	B4
1881	C2
1882	B4
2800	D2
2801	D3
2802	D2
2803	D3
2804	D2
2805	D2
2806	D2
2807	E2
2808	D2
2809	F3
2810	E2
2811	D2
2812	E2
2813	E2
2814	E2
2815	E2
2817	F1
2819	F1
2820	F1
2821	G1
2822	C1
2823	C2
2824	C2
2825	C2
2826	D3
2827	C4
2828	B3
2829	H2
2830	C4
2831	C2
2832	D3
2833	B2
2834	B2
2835	B2
2836	E3
2837	G2
2838	G4
2839	F3
2840	F3
2841	B2
2842	F3
2843	F2
2844	B2
2845	F3
2846	B2
2847	F3
2849	E1
2850	D3
2851	C4
2852	A4
2853	A3
2854	B2
2856	C4
2857	C4
2858	C4
2859	C3
2860	A2
2861	A2
2862	A1
2863	A1
2864	B3
2865	C1
2866	E3
2867	F1
2869	E3
2870	H4
2871	H2
2872	F4
2873	G2
2874	H3
2875	H2
2876	G3
2877	G4
2878	G4
2879	G4
2880	C1
2881	E4
2882	G4
2884	F2
2887	C2
3700	C4
3701	B3
3702	B3
3703	B3
3704	B3
3705	A3
3706	A3
3707	A3
3708	A3
3709	D4
3710	D3
3711	A3
3712	B1
3713	E4
3714	E4
3715	E4
3716	B2
3717	B2
3720	C4
3725	B1
3726	B1
3800	E2
3801	D2
3802	E2
3803	D2
3804	E2
3805	D2
3806	D2
3807	E2
3808	E1
3809	B3
3810	E2
3812	E2
3813	F1
3816	F1
3817	F2
3818	F1
3819	D4
3820	F1
3821	G1
3822	F2
3823	F2
3824	G1
3825	C2
3826	C2
3827	C2
3828	C4
3830	B2
3831	C4
3832	C4
3833	C2
3834	E3
3837	B2
3838	B2
3839	B3
3840	B3
3841	F3
3842	B3
3843	F3
3844	F3
3845	B2
3846	F3
3847	E3
3848	B2
3849	F3
3850	F3
3851	G3
3852	G2
3853	F2
3854	B4
3855	B4
3856	B3
3857	E1
3858	A2
3859	A2
3860	A2
3861	A2
3862	C2
3863	B2
3864	C4
3865	B4
3866	B4
3867	C2
3869	B3
3870	C1
3871	G4
3872	D4
3873	C4
3874	D4
3875	D4
3876	D4
3877	G4
3878	E4
3879	G3
3880	H3
3881	H3
3882	H4
3883	H3
3884	H3
3885	H2
3886	G2
3887	F4
3888	G4
3889	C4
3890	D4
3891	E1
3893	F2
3894	D3
3895	D3
3896	F4
3897	F2
3898	C1
3899	C1
5801	B1
5802	C1
6871	F4
6872	F4
6873	F4
6874	F4
6875	F4
7806	F3
7807	G3
7808	E3
7812	E4
7851	B4
7871	H3
7873	F4
7874	D4
7875	C1
9800	C1
9802	D4
9803	C1
9804	B4
9805	A2
9806	B4
9808	A2
9809	A2
9810	A2
9811	A2
9812	A3
9821	G3
9822	G3
9823	C3
9825	E3
9826	G4
9829	B2
9831	F4
9832	E4
9833	E2
9834	E2
9835	F2
9837	E4
9839	B2
9840	D4
9841	B4
9842	B4
9843	B4
9844	B4
9845	B4
9846	C4
9847	D4
9848	D4
9849	B3
9850	E2
9852	A4
9853	E4
9854	D4
9855	B3
9856	D2
9857	B2
9858	F2
9859	B1
9860	D2
9861	B3
9862	A1
9863	D1
9864	G4
9865	A4
9866	C1
9867	G4
9868	A1
9869	D1
9870	B1
9871	B1
9874	B2
9875	B1
9876	B1
9881	D4
9882	C2
9883	D4
9884	E4
9887	C4
9888	D1
9889	F2
9890	D1

CDC EXPLODED VIEW II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ELECTRICAL PARTS LIST - CDC BOARD

MISCELLANEOUS

1810	4822 242 73557	Ceram Resonator 8.46MHz
1880	4822 276 13503	Open/Close Switch
1881	4822 276 13503	CDM Position Switch
1882	4822 276 13503	Carrousel Switch
8002	4822 320 11313	Flexfoil 15 Pin

CAPACITORS

2800	4822 126 10053	180pF 10%
2801	4822 122 10466	220pF 10% 50V
2802	4822 126 10053	180pF 10%
2803	4822 122 10466	220pF 10% 50V
2804	4822 126 12787	330pF 10% 50V
2805	4822 122 10466	220pF 10% 50V
2806	4822 122 10466	220pF 10% 50V
2807	4822 126 12878	1,5nF 10% 16V
2808	4822 122 10466	220pF 10% 50V
2809	4822 126 12882	100nF +80 / -20% 50V
2810	4822 122 10459	560pF 10% 50V
2811	4822 122 10466	220pF 10% 50V
2812	4822 122 33848	47pF 5% 50V
2813	4822 122 33848	47pF 5% 50V
2814	4822 122 33195	100pF 10% 50V
2815	4822 126 12573	18pF 5% 50V
2816	4822 124 23624	47µF 20% 16V
2817	4822 126 10053	180pF 10%
2818	4822 124 23624	47µF 20% 16V
2819	4822 126 12787	330pF 10% 50V
2820	4822 126 10053	180pF 10%
2821	4822 126 11585	22nF +80 / -20% 25V
2822	4822 126 12339	2,2nF 10%
2823	4822 122 33848	47pF 5% 50V
2824	4822 126 11585	22nF +80 / -20% 25V
2825	4822 126 12882	100nF +80 / -20% 50V
2826	4822 124 23624	47µF 20% 16V
2827	4822 126 12882	100nF +80 / -20% 50V
2828	4822 126 12882	100nF +80 / -20% 50V
2829	4822 124 80865	10µF 20% 25V
2830	4822 126 12882	100nF +80 / -20% 50V
2831	4822 126 12882	100nF +80 / -20% 50V
2832	4822 124 23624	47µF 20% 16V
2835	4822 126 12882	100nF +80 / -20% 50V
2836	4822 124 23624	47µF 20% 16V
2837	4822 126 12882	100nF +80 / -20% 50V
2838	4822 126 12882	100nF +80 / -20% 50V
2839	4822 126 12882	100nF +80 / -20% 50V
2840	4822 126 12882	100nF +80 / -20% 50V
2841	4822 122 10574	1,2nF 10% 16V
2842	4822 121 51387	10nF 20% 16V
2843	4822 126 12882	100nF +80 / -20% 50V
2844	4822 122 10574	1,2nF 10% 16V
2845	4822 121 51387	10nF 20% 16V
2846	4822 126 11585	22nF +80 / -20% 25V
2847	4822 126 12882	100nF +80 / -20% 50V
2848	4822 124 23624	47µF 20% 16V
2850	4822 122 33197	1nF 10% 50V
2851	4822 124 41997	470µF 10V
2852	4822 126 12882	100nF +80 / -20% 50V
2855	4822 126 12882	100nF +80 / -20% 50V
2860	4822 124 41579	10µF 20% 50V
2861	4822 124 41579	10µF 20% 50V
2862	4822 126 12339	2,2nF 10%
2863	4822 126 12339	2,2nF 10%
2864	4822 126 12882	100nF +80 / -20% 50V
2865	4822 126 12882	100nF +80 / -20% 50V
2867	4822 122 10466	220pF 10% 50V
2868	4822 122 10466	220pF 10% 50V
2869	4822 122 10466	220pF 10% 50V
2872	4822 126 12882	100nF +80 / -20% 50V
2873	4822 126 12882	100nF +80 / -20% 50V
2874	4822 126 11585	22nF +80 / -20% 25V
2875	4822 126 11585	22nF +80 / -20% 25V
2876	4822 124 23794	470µF 20% 16V

RESISTORS

3800	4822 116 52239		120k 5% 0,5W
3801	4822 116 83864		10k 5% 0,5W
3802	4822 116 52239		120k 5% 0,5W
3803	4822 116 83864		10k 5% 0,5W
3804	4822 116 52291		56k 5% 0,5W
3805	4822 116 83864		10k 5% 0,5W
3806	4822 116 83864		10k 5% 0,5W
3807	4822 116 83864		10k 5% 0,5W
3808	4822 116 83864		10k 5% 0,5W
3810	4822 050 11002		1k 1% 0,4W
3811	4822 116 52244		15k 5% 0,5W
3812	4822 116 52272		330k 5% 0,5W
3813	4822 116 83884		47k 5% 0,5W
3814	4822 116 83882		39k 5% 0,5W
3815	4822 050 11002		1k 1% 0,4W
3816	4822 116 52175		100R 5% 0,5W
3817	4822 050 11002		1k 1% 0,4W
3818	4822 116 52175		100R 5% 0,5W
3819	4822 116 52222		390R 5% 0,5W
3820	4822 116 52219		330R 5% 0,5W
3821	4822 116 52249		1k8 5% 0,5W
3822	4822 116 52219		330R 5% 0,5W
3823	4822 116 52249		1k8 5% 0,5W
3824	4822 116 52269		3k3 5% 0,5W
3825	4822 116 52256		2k2 5% 0,5W
3826	4822 116 52257		22k 5% 0,5W
3827	4822 116 52278		390k 5% 0,5W
3828	4822 116 52257		22k 5% 0,5W
3829	4822 116 52175		100R 5% 0,5W
3830	4822 116 52235		1M 5% 0,5W
3831	4822 116 52257		22k 5% 0,5W
3832	4822 116 83872		220R 5% 0,5W
3833	4822 116 83864		10k 5% 0,5W
3834	4822 116 83864		10k 5% 0,5W
3835	4822 116 52256		2k2 5% 0,5W
3836	4822 050 11002		1k 1% 0,4W
3837	4822 050 11002		1k 1% 0,4W
3838	4822 050 11002		1k 1% 0,4W
3839	4822 116 52245		150k 5% 0,5W
3840	4822 116 52245		150k 5% 0,5W
3841	4822 116 52289		5k6 5% 0,5W
3842	4822 116 83864		10k 5% 0,5W
3843	4822 116 52303		8k2 5% 0,5W
3844	4822 116 83883		470R 5% 0,5W
3845	4822 116 83864		10k 5% 0,5W
3846	4822 116 52303		8k2 5% 0,5W
3847	4822 116 83883		470R 5% 0,5W
3848	4822 116 52303		8k2 5% 0,5W
3849	4822 116 52303		8k2 5% 0,5W
3850	4822 116 83883		470R 5% 0,5W
3851	4822 052 10338	⚠	3R3 5% 0,33W
3852	4822 052 10338	⚠	3R3 5% 0,33W
3853	4822 052 10338	⚠	3R3 5% 0,33W
3858	4822 116 52257		22k 5% 0,5W
3859	4822 116 52257		22k 5% 0,5W
3860	4822 116 83883		470R 5% 0,5W
3861	4822 116 83883		470R 5% 0,5W
3869	4822 116 52175		100R 5% 0,5W
3870	4822 116 52226		560R 5% 0,5W
3871	4822 116 83864		10k 5% 0,5W
3872	4822 116 83864		10k 5% 0,5W
3873	4822 116 83883		470R 5% 0,5W
3874	4822 116 83864		10k 5% 0,5W
3875	4822 116 83864		10k 5% 0,5W
3876	4822 116 83874		220k 5% 0,5W
3877	4822 116 83864		10k 5% 0,5W
3878	4822 116 83864		10k 5% 0,5W
3879	4822 116 83864		10k 5% 0,5W
3880	4822 116 52219		330R 5% 0,5W
3881	4822 116 83864		10k 5% 0,5W
3882	4822 116 83884		47k 5% 0,5W
3883	4822 116 52234		100k 5% 0,5W
3884	4822 116 52276		3k9 5% 0,5W
3885	4822 116 52234		100k 5% 0,5W
3886	4822 116 83884		47k 5% 0,5W
3887	4822 052 10221	⚠	220R 5% 0,33W
3888	4822 116 83864		10k 5% 0,5W
3889	4822 116 83883		470R 5% 0,5W
3890	4822 116 83883		470R 5% 0,5W
3891	4822 116 52244		15k 5% 0,5W
3892	4822 116 52175		100R 5% 0,5W
3893	4822 116 52175		100R 5% 0,5W
3894	4822 052 10338	⚠	3R3 5% 0,33W
3895	4822 052 10338	⚠	3R3 5% 0,33W
3896	4822 116 83864		10k 5% 0,5W
3897	4822 116 52175		100R 5% 0,5W

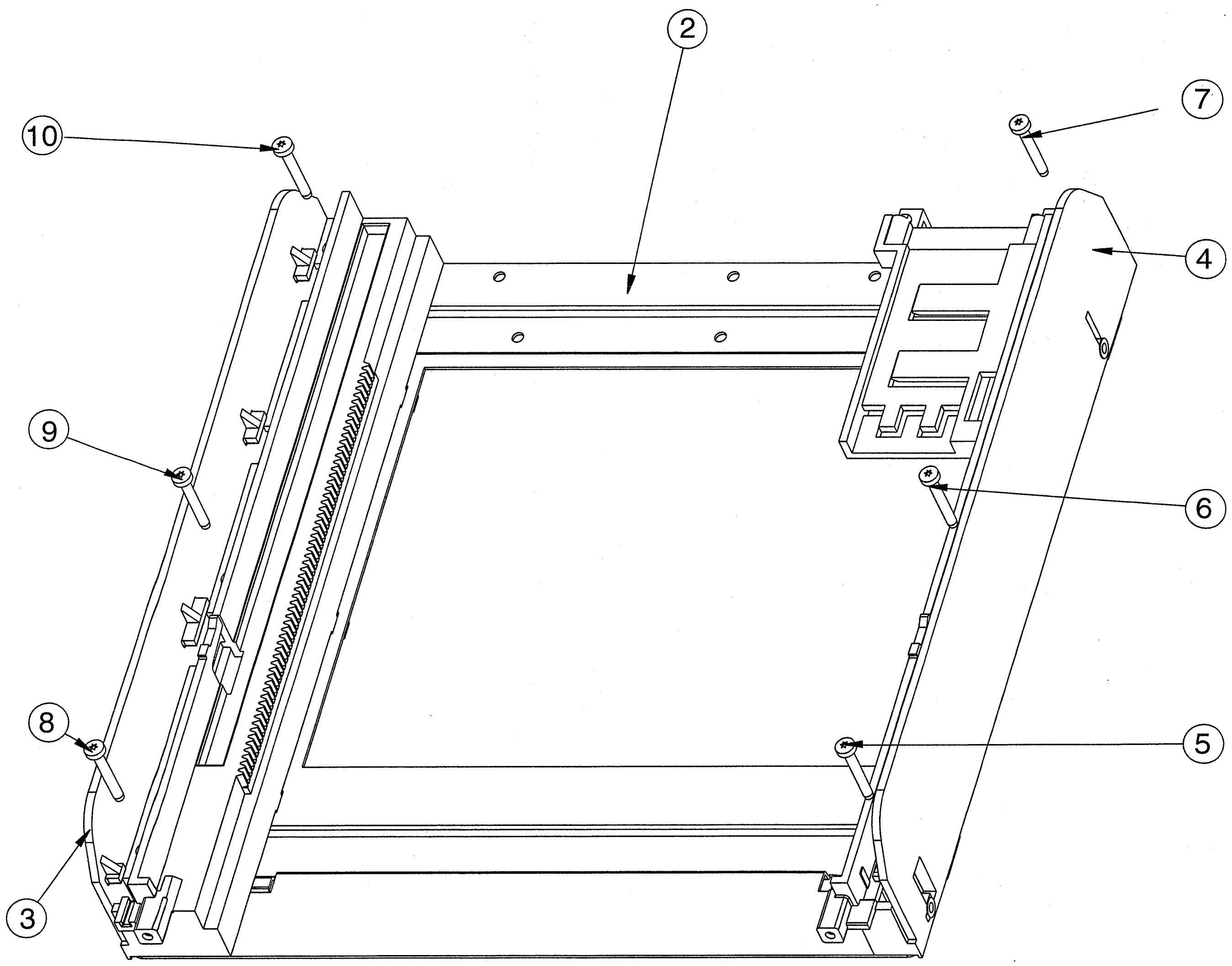
DIODES

6871	4822 130 30621	1N4148
6872	4822 130 30621	1N4148
6873	4822 130 30621	1N4148
6874	4822 130 30621	1N4148
6875	4822 130 34233	BZX79-C5V1

TRANSISTORS & INTEGRATED CIRCUITS

7800	4822 209 12752	SAA7378GP/M1
7801	4822 130 40902	BF240
7802	4822 130 40937	BC548B
7803	4822 130 44197	BC558B
7804	4822 130 40937	BC548B
7805	4822 130 40937	BC548B
7806	4822 209 32852	TDA7073A/N2
7807	4822 209 32852	TDA7073A/N2
7808	4822 130 40937	BC548B
7809	4822 130 41715	BC328-40
7851	4822 209 32421	TDA1311A/N2
7871	4822 209 32852	TDA7073A/N2
7872	5322 209 11306	HEF4094BT
7874	4822 130 40937	BC548B

NOTE: Only the parts mentioned in this list are normal service spare parts.



MECHANICAL PARTSLIST 3CDC MODULE

73	4822 502 12548	SCREW M2,6X3,5	98	4822 325 50215	SUSPENSION
74	4822 502 12548	SCREW M2,6X3,5	99	4822 325 50215	SUSPENSION
80	4822 528 10937	PULLEY	100	4822 691 10615	CD DRIVE VAM1201
81	4822 522 10494	GEAR DRAWER	115	4822 466 10736	CARROUSEL
82	4822 358 10115	BELT	117	4822 532 12365	BUSH DRAWER
83	4822 532 12364	WASHER	120	4822 532 51756	GROMMET
84	4822 532 12364	WASHER	121	4822 532 51756	GROMMET
95	4822 404 10894	SUPPORT	123	4822 402 10085	SWITCH BRACKET
96	4822 325 50215	SUSPENSION	125	4822 401 11708	DISC CLAMP
97	4822 325 50215	SUSPENSION	140	4822 466 10734	PLATE

ELECTRICAL PARTSLIST 3CDC MODULE

MISCELLANEOUS

100	4822 691 10615	CD DRIVE VAM1201
1800	4822 267 51453	FLEX FOIL CONNECTOR 12P
1805	4822 265 10979	FLEX FOIL CONNECTOR 15P
1806	4822 265 10981	FLEX FOIL CONNECTOR 15P
1880	4822 276 13503	SWITCH
1881	4822 276 13503	SWITCH
1882	4822 276 13503	SWITCH

CAPACITORS

2800	4822 126 10053	180pF	10%	50V
2801	4822 122 10466	220pF	10%	50V
2802	4822 126 10053	180pF	10%	50V
2803	4822 122 10466	220pF	10%	50V
2804	4822 126 12787	330pF	10%	50V
2805	4822 122 10466	220pF	10%	50V
2806	4822 122 10466	220pF	10%	50V
2807	4822 126 12878	1,5nF	10%	16V
2808	4822 122 10466	220pF	10%	50V
2809	4822 126 12882	100nF	20%	50V
2810	4822 122 10459	560pF	10%	50V
2811	4822 122 10466	220pF	10%	50V
2812	4822 122 10319	82pF	5%	50V
2813	4822 122 10319	82pF	5%	50V
2814	4822 122 33849	150pF	10%	50V
2815	4822 122 33192	27pF	5%	50V
2817	4822 122 33849	150pF	10%	50V
2819	4822 122 33848	47pF	5%	50V
2820	4822 122 33848	47pF	5%	50V
2821	4822 122 10462	15pF	5%	50V
2822	4822 126 12339	2,2nF	10%	16V
2823	4822 122 33848	47pF	5%	50V
2824	4822 126 11585	22nF	20%	50V
2825	4822 126 12882	100nF	20%	50V
2826	4822 124 23624	470µF	20%	16V
2827	4822 126 12882	100nF	20%	50V
2828	4822 126 12882	100nF	20%	50V
2829	4822 124 41579	10µF	20%	50V
2830	4822 126 12882	100nF	20%	50V
2831	4822 124 41972	4,7µF	20%	50V
2832	4822 124 12032	4,7µF	20%	50V
2835	4822 126 12882	100nF	20%	50V
2837	4822 126 12882	100nF	20%	50V
2838	4822 126 12882	100nF	20%	50V
2839	4822 126 12882	100nF	20%	50V
2840	4822 126 12882	100nF	20%	50V
2841	4822 122 10574	1,2nF	10%	16V
2842	4822 121 51387	10nF	20%	16V
2843	4822 126 12882	100nF	20%	50V
2844	4822 122 10574	1,2nF	10%	16V
2845	4822 121 51387	10nF	20%	16V
2846	4822 126 11585	22nF	20%	50V
2847	4822 126 12882	100nF	20%	50V
2849	4822 126 11585	22nF	20%	50V
2850	4822 122 33197	1nF	10%	50V
2851	4822 126 12882	100nF	20%	50V
2852	4822 124 80857	470µF	20%	16V
2856	4822 122 33848	47pF	5%	50V
2859	4822 126 12882	100nF	20%	50V
2860	4822 124 41579	10µF	20%	50V
2861	4822 124 41579	10µF	20%	50V
2862	4822 126 12339	2,2nF	10%	16V
2863	4822 126 12339	2,2nF	10%	16V
2866	4822 126 12882	100nF	20%	50V
2867	4822 122 33848	47pF	5%	50V

CAPACITORS

2868	4822 126 12882	100nF	20%	50V
2869	4822 126 12882	100nF	20%	50V
2870	4822 126 12882	100nF	20%	50V
2871	4822 126 11585	22nF	20%	50V
2872	4822 126 12882	100nF	20%	50V
2873	4822 126 12882	100nF	20%	50V
2874	4822 126 11585	22nF	20%	50V
2875	4822 126 11585	22nF	20%	50V
2876	4822 124 80857	470µF	20%	16V
2877	4822 122 10319	82pF	5%	50V
2878	4822 122 10466	220pF	10%	50V
2879	4822 122 10466	220pF	10%	50V
2880	4822 121 51387	10nF	20%	16V
2884	4822 126 12882	100nF	20%	50V
2887	4822 126 12882	100nF	20%	50V
2891	4822 124 23179	10µF	20%	16V

RESISTORS

3703	4822 116 83883	470Ω	5%	0,16W
3720	4822 116 52176	10Ω	5%	0,5W
3721	4822 116 83883	470Ω	5%	0,5W
3725	4822 116 83864	10kΩ	5%	0,5W
3726	4822 116 83864	10kΩ	5%	0,5W
3800	4822 116 52239	120kΩ	5%	0,5W
3801	4822 116 83864	10kΩ	5%	0,5W
3802	4822 116 52239	120kΩ	5%	0,5W
3803	4822 116 83864	10kΩ	5%	0,5W
3804	4822 116 52291	56kΩ	5%	0,5W
3805	4822 116 83864	10kΩ	5%	0,5W
3806	4822 116 83864	10kΩ	5%	0,5W
3807	4822 116 83864	10kΩ	5%	0,5W
3808	4822 116 83864	10kΩ	5%	0,5W
3810	4822 050 11002	1kΩ	5%	0,2W
3812	4822 116 83884	47kΩ	5%	0,16W
3813	4822 116 83864	10kΩ	5%	0,5W
3816	4822 116 52269	3,3kΩ	5%	0,5W
3817	4822 116 83961	6,8kΩ	5%	0,16W
3818	4822 116 83864	10kΩ	5%	0,5W
3819	4822 116 83883	470Ω	5%	0,16W
3820	4822 116 52269	3,3kΩ	5%	0,5W
3821	4822 116 52269	3,3kΩ	5%	0,5W
3822	4822 116 52257	22kΩ	5%	0,5W
3823	4822 116 52269	3,3kΩ	5%	0,5W
3824	4822 116 52269	3,3kΩ	5%	0,5W
3825	4822 050 11002	1kΩ	5%	0,2W
3826	4822 116 52257	22kΩ	5%	0,5W
3827	4822 116 52278	390kΩ	5%	0,5W
3828	4822 116 52257	22kΩ	5%	0,5W
3830	4822 116 52235	1MΩ	5%	0,5W
3831	4822 116 52257	22kΩ	5%	0,5W
3832	4822 116 83883	470Ω	5%	0,16W
3833	4822 116 83864	10kΩ	5%	0,5W
3834	4822 116 52283	4,7kΩ	5%	0,5W
3837	4822 050 11002	1kΩ	5%	0,2W
3838	4822 050 11002	1kΩ	5%	0,2W
3839	4822 116 52245	150kΩ	5%	0,16W
3840	4822 116 52245	150kΩ	5%	0,16W
3841	4822 116 83961	6,8kΩ	5%	0,16W
3842	4822 116 83864	10kΩ	5%	0,5W
3843	4822 116 52303	8,2kΩ	5%	0,5W
3844	4822 116 83883	470Ω	5%	0,16W
3845	4822 116 83864	10kΩ	5%	0,5W
3846	4822 116 52303	8,2kΩ	5%	0,5W

ELECTRICAL PARTSLIST 3CDC MODULE

RESISTORS

3847	4822 116 83883	470Ω	5%	0,16W
3848	4822 116 52303	8,2kΩ	5%	0,5W
3849	4822 116 52303	8,2kΩ	5%	0,5W
3850	4822 116 83883	470Ω	5%	0,16W
3851	4822 052 10338	3,3Ω		NFR25
3852	4822 052 10338	3,3Ω		NFR25
3853	4822 052 10338	3,3Ω		NFR25
3856	4822 116 80176	1Ω	5%	0,5W
3857	4822 050 11002	1kΩ	5%	0,2W
3858	4822 116 52257	22kΩ	5%	0,5W
3859	4822 116 52257	22kΩ	5%	0,5W
3860	4822 116 83883	470Ω	5%	0,16W
3861	4822 116 83883	470Ω	5%	0,16W
3862	4822 116 52175	100Ω	5%	0,5W
3863	4822 116 52175	100Ω	5%	0,5W
3864	4822 116 52175	100Ω	5%	0,5W
3865	4822 116 83883	470Ω	5%	0,16W
3866	4822 116 83883	470Ω	5%	0,16W
3867	4822 116 52234	100kΩ	5%	0,5W
3869	4822 116 52175	100Ω	5%	0,5W
3870	4822 116 52226	560Ω	5%	0,5W
3871	4822 116 83864	10kΩ	5%	0,5W
3872	4822 116 83864	10kΩ	5%	0,5W
3873	4822 116 83883	470Ω	5%	0,16W
3874	4822 116 83864	10kΩ	5%	0,5W
3875	4822 116 83864	10kΩ	5%	0,5W
3876	4822 116 83874	220kΩ	5%	0,5W
3877	4822 116 83864	10kΩ	5%	0,5W
3878	4822 116 83864	10kΩ	5%	0,5W
3879	4822 116 83864	10kΩ	5%	0,5W
3880	4822 116 52219	330Ω	5%	0,5W
3881	4822 116 83864	10kΩ	5%	0,5W
3882	4822 116 83884	47kΩ	5%	0,16W
3883	4822 116 52234	100kΩ	5%	0,5W
3884	4822 116 52276	3,9kΩ	5%	0,5W
3885	4822 116 52234	100kΩ	5%	0,5W
3886	4822 116 83884	47kΩ	5%	0,16W
3887	4822 052 10221	220Ω	5%	
3888	4822 116 83864	10kΩ	5%	0,5W
3889	4822 116 83883	470Ω	5%	0,16W
3890	4822 116 83883	470Ω	5%	0,16W
3891	4822 116 52272	330kΩ	5%	0,5W
3893	4822 116 52257	22kΩ	5%	0,5W
3894	4822 116 52191	33Ω	5%	0,5W
3895	4822 116 52176	10Ω	5%	0,5W
3896	4822 116 83864	10kΩ	5%	0,5W
3897	4822 116 52226	560Ω	5%	0,5W
3898	4822 116 52226	560Ω	5%	0,5W
3899	4822 116 52213	180Ω	5%	0,5W

COILS

1810	4822 242 73557	CERAMIC RES. 8,46MHz

DIODES

6871	4822 130 30621	1N4148
6872	4822 130 30621	1N4148
6873	4822 130 30621	1N4148
6874	4822 130 30621	1N4148
6875	4822 130 34233	BZX79-B5V1

TRANSISTORS

7808	4822 130 41344	BC337-40
7874	4822 130 40959	BC547B
7875	4822 130 40959	BC547B

INTEGRATED CIRCUITS

7800 ©	4822 209 12752	SAA7378GP
7801 ©	5322 209 11517	PC74HCU04T
7806	4822 209 32852	TDA7073A/N2
7807	4822 209 32852	TDA7073A/N2
7851	4822 209 32421	TDA1311A/N2
7871	4822 209 32852	TDA7073A/N2
7873	5322 209 10421	HEF4094BP